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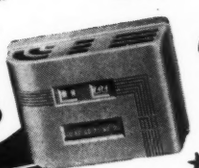

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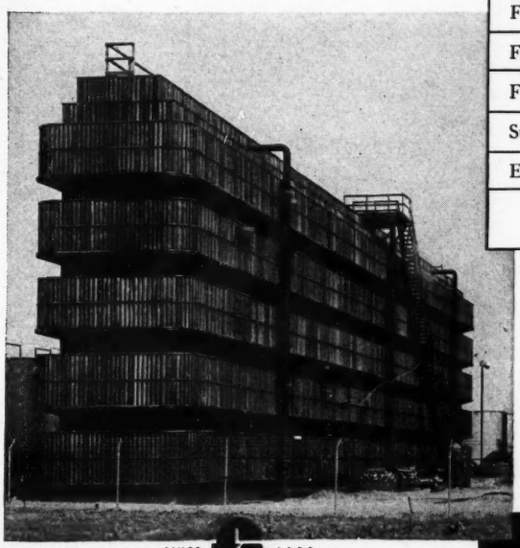
There never has been a time when the saving of critical materials and man-hours is as vital as *now!* Likewise, there never has been a period when industry has been faced with such a tremendous demand for plant construction, conversion and increased production.

Bearing this in mind, Fluor—manufacturers of *both* Mechanical Draft and Atmospheric Aerator Type Cooling Towers—directs the attention of industry to the fact that the war effort is best served by the specification of Atmospheric Cooling Towers because such specification immediately produces two important results. First, Atmospheric Cooling Towers release huge quantities of critical materials for armament production and, second, their specification greatly assists your production program because delivery is three times faster.

In 3 cases out of 4 where Mechanical Draft Types are being installed, an Atmospheric Cooling Tower will render identical service with identical thermal efficiencies. Therefore, in the interest of Victory, we believe the following rule should be strictly observed —*Atmospheric Cooling Towers should be specified in all instances except those where space or subnormal wind conditions make the use of Mechanical Draft Types imperative!*

ITEM	ATMOSPHERIC	MECHANICAL DRAFT	SAVINGS
DELIVERY	4 WEEKS	12 WEEKS	8 WEEKS
Critical Materials:			
1. Steel	None	33,600 lbs.	33,600 lbs.*
2. Fan Material	None	3,670 lbs.	3,670 lbs.*
3. Bakelite	None	250 lbs.	250 lbs.*
4. Brass	7,750 lbs.	10,650 lbs.	2,900 lbs.*
5. Cast Iron	19,550 lbs.	19,600 lbs.	50 lbs.*
Erection Man-hours	3300 Man-hours	5000 Man-hours	1700 Man-hours
Total Fan Horsepower	None	240 H. P.	240 H. P.*
Electric Motors	None	7 or more	7 or more*
Electric Switches	None	8 or more	8 or more*
Reduction Gears	None	7 or more	7 or more*
Electric Wiring	None	As required	100%*
Conduit	None	As required	100%*
Fans	None	7 or more	7 or more*
Flexible Couplings	None	14 or more	14 or more*
Fan Guards	None	7 or more	7 or more*
Fan Supports	None	7 or more	7 or more*
Steel Fan Rings	None	7 or more	7 or more*
Electric Power	Pumping	Pumping Plus Fans	50%

**Also saved are man and machine hours in producing raw materials, fabricating and assembling this equipment.*



These are the important critical material savings made when you specify an Atmospheric Cooling Tower. This parallel comparison is for an Atmospheric Cooling Tower and a Mechanical Draft Cooling Tower of identical capacity—10,000 g.p.m. Savings of badly needed critical materials, for larger or smaller Atmospheric Cooling Towers, are proportionate. Make the specification of an Atmospheric Cooling Tower your contribution to Victory. Be Sure With Fluor!

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GAS

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Eighteenth Year of Publication

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GUEST EDITORIAL

OUR WARTIME PROGRAM

By R. G. BARNETT

Vice President and General Manager,
Portland Gas & Coke Co., Portland, Oregon

THE design of wartime service for the gas industry is now becoming distinct. The program has been built by our own men and women working diligently, despite the confusion and turmoil of the first six months of war. The untiring effort of gas companies in evolving individual wartime programs fits into a broad pattern. There already is available an impressive pool of experience and information from which we all can benefit.

Now we know what we have ahead of us—we have a big job to do in our nation's war program and we have the leadership and experience to do it. We can come out of this war with a record of service and a mounting prestige that will help us solve our post-war problems. After a half year of actual warfare, the main trends of the gas industry's wartime program are becoming apparent. The details are not complete but the general lines are formed.

The wartime design follows four main lines of attack—four offensive fronts on which the gas industry can concentrate its manpower and resourcefulness. Let's proceed with confidence!

1. *The Operating Front.* Every effort must be made to increase efficiency and to deliver gas to the consumer—to war workers' homes, army cantonments, and war industries—with even greater speed and dependability than in peacetime, despite loss of personnel, scarcity of supplies and raw materials and other restrictions. We must supply more gas with less manpower; we must improvise and discover methods to produce more with our existing equipment and facilities.

2. *The Economy Front.* This will be a period of stringent economy for gas companies—on tires, oil, gasoline, metals and supplies. The materials saved by the gas industry—or made to function longer than we considered possible in peacetime—will help prevent a case of "too little—too late." Fire prevention measures must be increased. Every effort must be made to prevent sabotage. Our personnel must be encouraged to function with maximum efficiency. We must economize on everything we have—keep our equipment in the best possible operating condition, thus prolonging and increasing its usefulness.

3. *The Customer Front.* Two main programs must be launched and maintained by the new business departments of our companies: (a) a nutrition program for building health and healthful living to enable us Americans to meet the strain of "all-out" war; and (b) a program to demonstrate to customers how they can get longer life from their appliances, with a maximum of use. As a member of the gas fraternity so aptly stated, such a course of action is bound to create a reservoir of "surplus good will" that will be invaluable in helping to meet our post-war problems.

An unusual responsibility lies with our service departments during this emergency period. It is now necessary for us to ask our customers to forego some of the excellent service which we have been so willing to render. In order to get our customers to cooperate in such a restricted program we must make our appeal so strong as to increase their appreciation of our service rather than lessen it. Here is an opportunity to turn a liability into an asset—we can solicit our customers' enthusiastic support of our reduced program, rather than a questioning attitude, simply by getting them to understand that only by full cooperation in all critical materials conservation programs can we all perform the greatest service to our nation.

4. *The Community Front.* Gas companies everywhere must be in the front line of civilian defense, with their resources working hand in hand with other community service groups. We must be constantly on the alert—prepared at all times to protect our structures, with trained repair crews on hand ready to meet any emergency. Members of our organizations must be encouraged to enroll in all phases of training for local defense work, such as first aid, fire protection and rescue work.

This is a big job for a big industry. Let us aggressively and intelligently take the offensive on these four fronts, thereby helping our nation to victory and making it possible for our industry to take its rightful place in a "Better America" when the peace is won.

JOIN THE CO-ORDINATED INDUSTRY REPAIR SERVICE PLAN *today!*

If you are in a predicament due to the restrictions on appliance sales, *remember that your customers are too!* Offer to help them and at the same time help yourself by setting up a top-notch repair service. ❡ You can get plenty of ideas based on what other dealers are doing by referring to recent numbers of your appliance trade journals. Almost every month these magazines are carrying articles on "how my repair department is helping to offset losses in sales revenue," illustrated, in many cases, with pictures of the shop layout, equipment, advertising, and so on. ❡ If these ideas "ring the bell" and you decide that your business also can profit by playing up the repair department, start now to get things organized. Determine, first of all, whether you can get the help you need or whether you will have to train people yourself. Locate the necessary tools and equipment. Make sure of a supply of materials and spare parts. ❡ Finally, when everything is ready so you can accept the business, advertise! Tell the world about your store—about the new appliances which you may still have in stock—and about the new repair service by which you hope to put aging and ailing appliances in condition to last out the war. ❡ Such a program would be 100% in the public interest as well as a timely income producer and goodwill builder for you.

DISPLAY THIS EMBLEM

Duration-ize **your appliances with timely repair!**
A WARTIME NECESSITY

P·G·and·E PACIFIC GAS AND ELECTRIC COMPANY

THERMALLY THINKING

The Right to Operate

THE orderly and efficient manner in which the normal activities of the natural gas industry have been transformed from the fruitful usages of peace to the devastating demands of war has been at once a contribution of first magnitude to our national security and a tribute to the entire personnel of the gas utilities. To achieve such an accomplishment required more than mere noisy patriotism masking an assiduous devotion to self interest; it required the technical implementation of the will to do, in the form of adequate plant and equipment guided by competent and cooperative management.

Indicative of the recognition on the part of the Administration of both this will and the ability of the industry's leaders is evidenced by the fact that to a greater extent than in most specialized fields, the affairs of gas transmission, distribution and utilization are in the hands of experienced utility trained experts. Fortunately for America's myriad production problems the professional utility haters who have made political careers of harassing and badgering the gas industry are for the moment embarrassed into silence by the magnitude of the concrete problems that are not soluble in the thin reagents of their social theories and personal animosities.

But it is well for us to remember that although a national emergency has silenced their voices, it has not stilled their ambitious planning, nor will the end of hostilities be any guarantee of a return of the era in which private initiative was allowed to flourish and to gather its own rewards. Wars are precipitated by forces at once so subtle and so all powerful that even those in the dictators' seats seek vainly for plausible explanations with which to feed their propaganda mills.

The promise of a better world as the prime reward of victory must always remain couched in vague and equivocal terms, for what would constitute a better world for some would represent a threat of overwhelming special disaster to others. Post-war planning is even now well under way, and yet even the planners themselves must recognize in their own handiwork the melancholy flaw of pragmatic futility. Predicated as it is on the premise that industry and population alike will forever be under the direction and control of bureauocracy, post-war planning may well find that the turning of the tide of a single election can throw both planners and plans, good and bad on the scrap heap of dead illusions.

Those things will remain only that have contributed and can continue to contribute to the material and the spiritual development of the nation. And the right to administer them, which is now only a tenuous privilege, will again be lodged with those who have demonstrated their capacity in bad times, as well as in good, to produce and deliver to America value for value in goods and services rendered and asked.

It has been said that those industries will be governed least whose leadership proves most capable of self government in the interests of national security, and under the stress of emergency demands. If this be true, we see no reason to fear that the rights of private management to produce an ever improving standard of natural gas utility service will be permanently impaired. On the contrary the lesson now being pointed out is obvious, that when a maximum of service is required, only qualified gas men are able to step in and deliver the goods.

■ ■

Estimate the Reserves

THE newly appointed Director of the Natural Gas and Natural Gasoline Division of the OPC, E. Holley Poe, may not be hard put at the moment for projects to occupy his time and attention, yet we believe that one of the first items on his agenda should be the long neglected study of the natural gas reserves of the nation.

In accepting his appointment Mr. Poe said, "It (the Division) must concern itself with formulating, in cooperation with the industry, plans and programs designed to assure the discovery and production of an adequate quantity of natural gas and natural gasoline." Certainly no plan can or should be formulated for the "discovery" of new natural gas supplies until a competent nationwide estimate of existing reserves has been tabulated.

Individual oil and gas producing companies have in almost every instance reasonably accurate geological estimates of the reserves in all of their proven fields. The figures could and should have been tabulated as a voluntary industry activity, but the truth of the matter is that any attempt to launch the undertaking has been quietly discouraged by the very companies whose cooperation would be most essential to its success. The necessity for secrecy regarding our stocks of such essential fuel might well prevent the dissemination of the figures during war time. But once the machinery had been set up that would insure an accurate and perpetual inventory of our gas reserves, we believe that the industry itself would see the advantage of cooperating in its continuance after the emergency had passed.

It is inevitable that some form of either voluntary or required conservation of our natural gas resources will survive the restrictions that will be lifted after the war. The Director of the Natural Gas and Natural Gasoline Division can not properly be required to concern himself with the post war position of the natural gas industry; but he is in a position to render a vital service to his own Division as well as to the natural gas companies by undertaking and pushing through to completion a survey of all of the known reserves of this vital fuel.

GAS at WAR

Washington Notes

ORDERS issued last month by union governmental agencies affecting the gas utility industry and its manufacturers are briefed below:

P-46: The War Production Board acted June 24 to expedite the extension of utility services, such as gas, electricity and water, to thousands of war housing units throughout the country.

Under an amendment to P-46, utility extensions to housing projects are assigned the same preference ratings as are assigned to the housing projects themselves. Heretofore extensions to housing projects were specifically excluded from the automatic rating assigned by P-46. Materials needed for such extensions will be made available as far as possible from the inventories of the utility companies themselves. A catalog listing excess stocks has been compiled and sent to all utilities.

Under the new procedure for decentralizing approval of applications for utility extensions, the builder will ask his local FHA office to approve the construction of a privately financed war housing project. If his application discloses that it is practicable and necessary to build, he will be given a letter requesting the local utilities who will service the project to prepare an application. The utilities will survey the job and make applications for permission to construct necessary extensions. Instead of sending this application to Washington for approval as heretofore, each utility will submit it to the FHA office which is reviewing the construction application. From this point on, utility applications and the construction applications will be handled together until they are approved or denied by the field office of the War Production Board in that area.

When the Federal Public Housing Authority decides to build a public war housing project, similar steps will be taken, except that this agency instead of the private builder will by letter request the utility to prepare an application to extend its services. The Housing Priorities Branch of the War Production Board, now in New York, which approves or disapproves all public housing projects, will have the final word on utility applications as well. In all cases, when utility extensions are approved, they will automatically receive the same prfeerence rating that the housing project enjoys.

The new plan has been worked out by the Power Branch of the War Production Board in collaboration with the Board's Housing Priorities Branch and Federal housing agencies. Utilities are being instructed in the new procedure by an administrative letter from the WPB Power Branch. Local offices of FHA will give full details to private builders.

Other changes in the amendment and extension to P-46 include:

1. Utilities in Canada are brought under the terms of P-46, formalizing arrangements previously worked out by WPB with the Department of Munitions and Supply in Ottawa.

2. Material required for utility extensions to all projects rated A-5 or better is assigned the same rating as is assigned to the project itself.

3. An A-5 rating is assigned to material required by utilities for protection against air raids, provided such protection is directed by an authorized Federal or state agency.

4. After July 1, 1942, a preference rating of A-1-c is assigned to deliveries of material required for repair of an actual breakdown of existing utility facilities or required to make reasonable advance provision for such repair. The amount of material that may be acquired under an A-1-c rating is restricted.

5. Automatic approval of 250-ft. extensions, formerly permitted, is changed to apply only to projects if (1) the buildings affected are wired or piped and ready for service by July 1, 1942, or (2) in the case of new construction, foundations are completed prior to July 1. After July 1 no extension of any length can be made without special WPB approval.

6. The order, which was to have expired June 30, 1942, has been extended to Sept. 30, 1942.

E. Holley Poe Heads OPC's Natural Gas Division

E. HOLLEY POE has been appointed director of the newly-created Natural Gas and Natural Gasoline Division of the Office of Petroleum Coordinator for War it was announced late in June by Petroleum Coordinator Harold L. Ickes. Mr. Poe resigned as secretary of the Natural Gas Section of the American Gas Association to accept the appointment.

E. HOLLY POE

Assistant director of the Division is Paul Raigorodsky, formerly assistant director ot fhe Production Division and formerly with the Petroleum Engineering, Inc. Others on the staff of the new division who were transferred from the production division include R. W. Ducker, formerly with the Oklahoma Natural Gas Co., Tulsa, Okla., chief of the natural-gas section; James E. Pew, formerly with the Virginia Gasoline & Oil Co., chief of the natural gasoline section; J. Woodward Martin, formerly with the Lone Star Gas Co., Dallas, Texas, and Thomas R. Weymouth, formerly with the Columbia Gas & Electric Corp., Wilmington, Del.

The division according to Deputy Coordinator Ralph K. Davies, will concern itself with all of the problems involved in the production of natural gas, the production and manufacture of natural gasoline, and the associated hydrocarbons used in the manufacture of war products.

The new division which will function on the same level as do other OPC divisions will concern itself with formulating, in cooperation with the industry, plans and programs designed to assure the discovery and production of an adequate quantity of natural gas and natural gasoline, carrying forward these activities with minimum use of scarce materials.

Upon assuming his new post, Mr. Poe stated that every effort will be made to work with the industry in an over-all effort to assure the maintenance of adequate transportation and distribution facilities. He expressed confidence that the natural gas and natural gasoline industries "will give us full cooperation."

"Every segment of the petroleum industry is interdependent upon the others," Mr. Poe declared. "We shall do our utmost to integrate our efforts with those of the other division, of the Office of Petroleum Coordinator, and to cooperate with other Federal agencies that are interested in transportation and distribution problems.

Mr. Poe has been associated with the natural gas and natural gasoline industry for 24 years. In 1918 he joined the staff of the Tidal Oil Co. (now Tidewater Oil Co.). Two years later he became associated with Tiger Mountain Oil Company, and its subsidiary, the Henryetta Gas Co., of Tulsa, Okla., where he was in charge of natural gas and natural gasoline operations. When the Henryetta Gas Co. was purchased by the Central States Power and Light Co., in 1927, Mr. Poe continued with the organization as assistant general manager.

He resigned in 1937 to become secretary of the Natural Gas Section of the American Gas Association, with headquarters in New York City, where he resides.

Priorities Regulation No. 3: The use of preference ratings will be simplified and standardized by the terms of an amendment to Priorities Regulation No. 3, announced June 12 by the Director of Industry Operations.

Effective July 1, any preference rating, no matter how it has been assigned ing, no matter how it has been assigned, may be applied or extended by a single form of certification which states merely that the purchaser certified to the seller and to the War Production Board that he is entitled to use the preference ratings indicated on his purchase order, in accordance with the terms of Priorities Regulation No. 3.

In addition to the standard certification, orders on which a preference rating is applied or extended after July 1 must also include the identification symbols required by Priorities Regulation No. 10, which established the Allocation Classification system.

L-63: An amendment to Suppliers' Inventory Order L-63, effective May 23, provides that the maximum permissible inventory of suppliers may, at the option of the supplier, be calculated on the basis of two-thirds of the dollar value of sales shipped from inventories during the three preceding calendar months, if the supplier is in the Eastern or Central war-time zones, and on the basis of a total dollar value equal to the dollar value of sales in a like period if the supplier is in any other time zone.

The movement of inventories from manufacturer to distributor or distributor to dealer is not affected; the order applies only to the installation of the equipment.

L-79: In an interpretation of L-79 by the WPB on May 22, plumbing and heating equipment may be used as collateral in a security transaction and the title may pass when there is no physical movement of the equipment other than for storage or warehousing without violating the order.

P-84: Installation of equipment calling for more material than that being replaced is permissible under the Plumbing and Heating Repair and Maintenance Order (P-84) if the substitution is one of less critical material for that which is more critical.

This is made clear by Interpretation No. 1, issued June 1, which also declares that the prohibition against a substitution "more extensive than that which is necessary to replace" worn-out or damaged parts does not mean that the identical part or parts must be replaced.

Furthermore, installations calling for a different kind of equipment are not necessarily more extensive within the terms of the order, if the new parts do not contain a greater weight of metal.

M-43-a: This Conservation Order has been rewritten and consolidated, and an amendment issued June 7 supersedes the restrictions of the original order. In the amended order it is stated that after July 1 no person may use more than 30 per cent of the amount of tin used in the corresponding quarter of 1940. Tin recovered from salvaged solder is exempt from this quota. The order provides that any person may manufacture or use solder having a tin content of not more than 40 per cent by weight for the repair of gas meters.

L-144: Limitation Order L-144, issued June 12, prohibits the sale and delivery of laboratory equipment except for certified essential uses in order to save highly critical materials and to make certain that such equipment will be available for war purposes.

Manufacturers will obtain the necessary amounts of critical materials for purposes permitted by the order by filing PD-25A applications under the Production Requirements Plan. Distributors, wholesalers, and jobbers needing priority assistance should file PD-IX forms with the Distributors Branch of the War Production Board.

L-94: Shortages of electric power in some areas and impending shortages in others, have caused the WPB to issue Limitation Order L-94 which provides for curtailment of electric power in the United States as needed.

Utilities must operate their systems so as to produce the maximum amount of power from present capacities, when and where shortages actually occur, commercial and industrial consumers will be restricted first, and residential users last.

P-98: Amendment No. 1 to Preference Rating Order P-98, extending its provisions to Canadians. Canadian operators have been placed on substantially the same footing as United States operators as far as priority assistance is concerned.

Under P-98 preference ratings from A-1-a to A-10 were assigned for deliveries of materials to be used for specified purposes in the production, refining, transportation and marketing of petroleum and petroleum products.

Letter from Honolulu

HONOLULU GAS COMPANY, LTD.

June 16, 1942

Mr. Clifford Johnstone
Managing Director, Pacific Coast Gas Association
447 Sutter Street,
San Francisco, California

Dear Mr. Johnstone:

Your air mail letter of May 25 arrived today.

Yes, we have been operating for over six months under complete blackout conditions.

Some years ago we were endeavoring to stop any particles of soot from our generator from blowing into the neighboring pineapple cannery. At that time we installed on the stacks of the generator cinderhoods, very similar to those installed at the Seattle plant, except that they are entirely enclosed at the bottom so that there is no opportunity for the glare from the operating stack valve to show. These have been found very effective for blackout conditions.

We obtained a large quantity of a radium enamel paint and have painted the hands of our meters as well as gauges, and the numbers on the gauges and the meters, so that they are readily seen in the dark. This is true also of the compressor room as well as the boiler room and engine rooms throughout the plant.

Our compressor room is completely blacked out by having all windows painted black. This allows us to use flashlights in this room at night to adjust oilers as well as pressure controllers.

We installed the water gauge glasses on the boilers in a completely tight tin can leaving a long narrow slit in front. Behind this we placed one of the small fluorescent lamps. The helpers and operators are furthermore equipped with flashlights covered with blue cellophane.

It is necessary for us to move our men through town on the 11:00 o'clock shift with company cars that have merely a two-inch dark blue beam from each headlight.

Of course, we feel that so far we have been very fortunate in not having any bad breaks either at the plant or in the street department at night but we are prepared for emergencies of this type with blue lights and emergency equipped wagons. All of this is no fun, and as Leon says in London, you get so you can see in the dark after a while. I hope this will give you some information for your California companies for this winter's operations.

With best wishes and kindest regards,

Yours very truly,
E. S. JONES
Chief Engineer

E. L. Medford, of Lone Star Gas Co.'s Fort Worth (Texas) division holds a fire extinguisher as he stands by an emergency trailer that contains line repair tools and a first aid kit.

Plant Protection

Federal Power Commission: FPC engineers and U. S. Army engineers will proceed at once under Presidential order with inspection of gas utility properties, in the interest of protection from sabotage. Secret plans will result, probably involving minimum interference with those already underway. The following steps are indicated:

(1) Conduct surveys to ascertain the security status of the gas utilities.

(2) Determine security deficiencies.

(3) Make recommendations for security action by owners and operators, and also by state, local and Federal agencies.

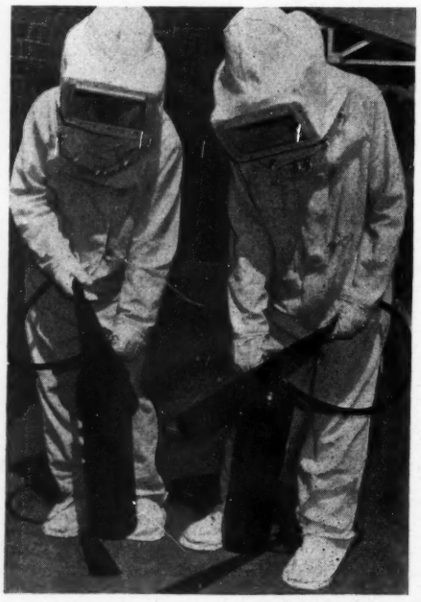
(4) Make recurring inspections to determine that adequate standards of security against sabotage and other destructive acts or omissions are maintained.

(5) Take all other necessary steps within the scope of FPC authority for protection of essential facilities against sabotage and other destructive acts or omissions.

Lone Star Gas System, Fort Worth (Texas) Division: The company's emergency procedure is set up to function instantaneously after the first word of enemy action. It provides for rapid movement of men and equipment especially designed for such an incident. Equipment includes an emergency repair trailer, asbestos fire suits, gas masks, inhalators, first aid equipment, and a trained personnel to operate the equipment. Word of enemy action would come from the central control room of the Fort Worth-Tarrant County Civilian Defense Council, through which all information on air raids is to be cleared. Representing the gas company in the control room are Guy Draughon, street department, chief clerk, and W. A. Russell, warehouse foreman. These men start the company emergency procedure in motion by calling the shop clerk who notifies 13 key men of the company. These 13 men call the emergency equipment crews and dispatch them to the scene of enemy incident. Duties of the shop clerk and key men are typewritten and outlined in a schedule of proceedure that tells each man his specific duties. (See cuts.)

The emergency repair trailer and equipment stand by at all times ready to be hooked to a truck for immediate movement. It contains a first aid kit, pipe cutters and threaders, fire axes, flood lights, gate valve plugs, fire extinguishers, gas bags, gas stoppers, pipe and fittings and couplings.

British Columbia Electric Railway Co., Vancouver, B. C.: The first enemy submarine bombardment on Canadian soil, which occurred at 10:35 p. m. June 21 on Vancouver Island's west coast did not find the British Columbia Electric Railway Co., Vancouver, B. C. unprepared for such an attack. Under the direction of T. Ingledow, chief engineer of the company, fullest precautions have been taken to insure against possible ignition by enemy action. Teams organized to save life and property are checked with stopwatches to determine speed in dressing in asbestos suits, running out 150 ft. of hose, coupling it,mounting ladders, scaling walls, mounting roofs and directing water against fire.



Wayne Sharp, left, and A. C. Bills, of Lone Star Gas Co.'s Fort Worth (Texas) division, wear asbestos fire suits.

Arkansas-Louisiana Gas Co., Shreveport, La.: All employees, including officials, of the Arkansas-Louisiana Gas Co. are being photographed in the company's system to set up positive identification. The plan was undertaken following the executive department's decision that certain key properties be closed to all outsiders for the duration. The system of identification is similar to that used by many war production plants. Regular employees will wear a badge or button designating the company and the department where the employee works. This information will frame a picture of the employee which indicates his approximate height and a serial number. In addition to the badge, certain employees, who in the course of their work travel from one property to another, will carry a card with their signature and that of their superior.

Brooklyn (N. Y.) Union Gas Co.: Alert, sharp-eyed, keen-eared dogs have been added to the force of watchmen guarding the company's properties against possible sabotage. The first of the dogs—a husky German shepherd named "Lady"—has already reported for "duty." She will assist a watchman in guarding a 15,000,000 cu. ft. holder. Other dogs will be obtained in the future at the suggestion of the War Department, which pointed out that an intellient dog—by means of its highly developed senses of smell, sight and hearing—often detects the presence of a stranger under conditions where the person would escape the notice of a watchman. Moreover, when a dog and man work together, the danger of the man being slugged is greatly reduced.

Southern California Gas and Southern Counties Gas Co.'s, Los Angeles, Calif.: An order from the Office of the Under-Secretary of War recently directed the companies to fingerprint all men and women in their employ. The deadline set for the completion of the task was July 15. Prints are being taken on official F. B. I. fingerprint cards which are supplied by the Army Ordnance. All cards will be turned in to the War Department.

Gas for War Industries

INCREASED demands by war industries for natural gas from the shallow areas of Missouri, Oklahoma and Kansas will be met by drilling additional wells in these states, according to Petroleum Coordinator for War Harold L. Ickes. Armament factories, aircraft plants, and other industries producing important war products make it imperative that the required quantities of natural gas be available, said Deputy Coordinator Ralph K. Davies.

Permission to drill the wells on drilling units less than 640 acres was recommended by the Office of Petroleum Coordinator for War and issued by the War Production Board as Supplementary Order No. 2 to Conservation Order M-68.

The supplementary order applies to the entire state of Missouri, 43 counties in Kansas, and 17 counties in Oklahoma.

Under the order as it originally was issued, materials could not be used for natural gas wells unless they were drilled on units of not less than 640 acres. Because this regulation did not permit producers in the three states to meet increased domestic and industrial demands, the supplementary order now allows drilling on units of not less than 40 acres.

About 2900 wells are now producing natural gas in the area. To meet the local demand, it is estimated that another 800 wells must be drilled at the rate of 500 wells a year. Each well would require only 8½ tons of steel.

Material required to drill, complete, or provide additions to a well must be on hand and available for such use or must be obtained without the use of priority assistance.

■ ■

Advertising Allowances

Advertising allowances granted by a manufacturer for promotional services to a distributor or retail outlet are not "frozen" by the general maximum price regulation and are not to be considered as an element in the price at which goods were delivered during March (the base period under the universal price ceiling), according to an official OPA interpretation of May 28.

The seller is, therefore, not required to continue to grant the advertising allowances customarily granted by him to different purchasers or classes of purchasers.

If, however, allowances, even though designated as "advertising allowances," actually constituted a reduction in the price of merchandise and were granted by the seller without regard to promotional services to be rendered by the buyer, (the distributor or retail outlet) the seller is required to treat such allowances in the same way as his customary allowances, discounts and price differentials prevailing in March.

Under the price regulation, a seller may not "change his customary allowances, discounts or other price differentials unless such change results in a lower price."

Advertising allowances constitute such practices as paying by a manufacturer, in whole or in part, the cost of a retailer's or distributor's promotional or display advertising, the cost of demonstrators or offering premiums to retailers and salesmen to push sales of new or slow moving commodities.

■ ■

A symbol of preparedness—this mobile soup kitchen is designed to serve food and hot drinks for disaster relief workers at the Atlanta (Ga.) Gas Light Co.

Mobile "Soup" Kitchen

Atlanta (Ga.) Gas Light Co.: In cooperating with its local Civilian Defense Council, the Atlanta Gas Light Co. has inaugurated a comprehensive program for disaster relief, with special emphasis on repairing broken gas mains and feeding emergency relief crews—even to the construction of a mobile soup kitchen designed to serve workers following enemy action. The traveling kitchen will provide hot food and drinks for repair crews who must work at all hours. Designed by O. C. Waters, assistant to the president, and Miss Cephalie Lewis, home service director, the "soup kitchen" is mounted on a two-wheel trailer so that it can be hauled by any of the company's coupes. The kitchen unit is equipped with two five-gallon vacuum containers for hot drinks, such as coffee and cocoa, and hot foods consisting of soups, beans, and stews. Each of the five-gallon containers will hold 80 cups of coffee or 50 bowls of soup. Drawers are built in separate compartments for mugs and bowls and there is ample space for bread, sandwiches, sugar, cream and spoons. On the back of the trailer kitchen are two built-in charcoal containers, each equipped with a vessel for heating water or drinks. A flue carries off the gases from the charcoal fire. The charcoal buckets may be removed from the trailer and used anywhere that a fire is needed. Storage space is provided in the trailer for about 20 additional sacks of charcoal.

When the "soup kitchen" was first completed, it was placed on display in the front window of the company's main office at Peachtree and Harris Streets. This window display attracted city-wide attention and even drew comment from local Civilian Defense officials and the newspapers.

Officials of the Atlanta Gas Light Co. will furnish blueprint plans and further information upon request.

■ ■

Advertising Front

A. G. A. Industrial and Commercial National Advertising: The portrayal of gas as a vital material of war was the theme carried out by national advertisements prepared by the American Gas Association Industrial and Commercial Section which appeared in numerous magazines recently. Typical headlines read: "More Tanks *Faster!* with Industrial *GAS*"; "Behind our armed forces . . . the steady flame of *GAS!*"; "At Military Bases, too, *GAS* Cooking Wins its Stripes!"; "Armies must be fed *well* . . . and modern *GAS Cooking* has pitched in for the duration!" These advertisements appeared

Another VICTORY VOLUNTEER!
HOW TO GET THE MOST OUT OF YOUR HOT WATER SERVICE
Sign up your gas hot water heater . . . it's behind the Victory effort 100%! It stands ready to guard your home against dirt and disease at a time when your health is more important than ever before. It's all set to cut your cleaning hours into minutes, leaving you free for other more important Victory work. Enlist your gas hot water heater in the Victory program today!
GAS
SAN DIEGO GAS & ELECTRIC COMPANY
Buy U. S. WAR STAMPS AND BONDS

Sample of the war-time advertising of the San Diego Gas and Electric Company.

in such publications as *Business Week, Steel, The Iron Age, Metals & Alloys, Heat Treating & Forging, Industrial Heating, Chain Store Age, Modern Hospital, American Restaurant, Ceramic Industry*, and *Bakers Helper.*

Arkansas-Louisiana Gas Co., Shreveport, La.: Because of some conflicting opinions among various local defense organizations as to the proper method of handling gas fires, pilot lights and gas-burning appliances, a special advertisement telling of the correct procedure has been prepared by the advertising department, and is being sent to every town and city served by the company. The ad, set up in the form of newspaper mats, instructs gas consumers not to turn off gas meters or pilot lights during a test blackout. Heaters, range top-burners or other open flame appliances should be turned off at the appliance in rooms where the windows are not darkened, but it is not necessary to turn off any gas-burning equipment in rooms properly darkened, according to official instructions. The advertisements are being submitted to local defense authorities for approval.

Servel, Inc., New York, N. Y.: Tieing in with the *Saturday Evening Post* schedule of nine pages in color promoting the National Nutrition Program in June, Servel took a full page ad in the June 13 issue. It bore the caption, "What every housewife should know about preparing WAR FARE." Servel has also, in cooperation with the Office of Defense Health and the *Post*, assembled a special kit which can be set up as a window or floor display in local gas company offices so that they may tie in their organizations both with the Servel ad and with the National Nutrition Program.

Geo. D. Roper Corp., Rockford, Ill.: The May, 1942, issue of Geo. D. Roper Corp.'s "Roper Ranger" carried numerous examples of newspaper ads, displays, direct mail, charts, radio "spots," and booklets planned to aid dealers in "helping the cause of victory by featuring the nutrition story and healthful cooking." Consolidation of all efforts into one program is urged. Some suggestions are: (1) provide employees with facts on nutrition; (2) hold food classes for women's groups; (3) cooperate with all local war services; (4) set up floor nutrition booths and displays.

■ ■

War Damage Insurance

How and where can business men obtain the Government's recently-created insurance protection against damage to private property from enemy attack?

The answer is, consult your own insurance agent or broker. He will accept applications for raid coverage.

The blanket protection which the RFC's War Damage Corp. formerly furnished without requiring a contract or the payment of premiums expired June 30 and is replaced by this new form of coverage.

Under the new plan, insurance companies will act as fiduciary agents for the War Damage Corp. in writing policies and collecting premiums. They will assume a percentage of all losses in excess of net premiums and have a corresponding interest in a small percentage of any profits.

This insurance covers physical loss of real or personal property, including automobiles, resulting from enemy attack or action of U. S. armed forces in resisting attack. However, it does not cover indirect or consequential losses or those which occur due to blackouts, sabotage, seizure, capture, pillage or looting.

Rates are low and are uniform for the entire United States, they bring 10 cents per $100 on dwellings and furniture, and approximately 20 cents per $100 on manufacturing and industrial buildings.

■ ■

War-time Dealer Aids

Servel, Inc., Evansville, Ind.: To help dealers in encouraging the conservation and economical use of household appliances, Servel, Inc., has prepared a folder entitled "Conserving Your Servel Gas Refrigerator," and sent copies of the folder (Form No. SVN-665) to all Servel Electrolux distributors. The folder, suitable for mailing with gas bills, circulation by home service departments, delivery by service men or distribution at offices, is being supplied at the price of $1.50 per 1000 copies.

Wisconsin Public Service Corp., Green Bay, Wis.: A 16-page "Gas Appliance Information Bulletin" which contains "every-day language" explanations of Limitation Orders, Priorities and Price Ceilings has been issued to appliance dealers by the company under the direction of Dale Remington, advertising manager. The booklet, divided into four sections, discusses Inventory Limitation Order L-63 and Amendment No. 2 to Order L-63; Appliance Sales Limitation Order L179; OPA Price Ceiling Order; and Gas Appliance Questions and Answers relative to limitation orders.

■ ■

First Aid

Citizens Gas & Coke Utility, Indianapolis, Ind.: Company has instituted a program of Red Cross Training for 41 First Aid students who meet two hours each week for instruction. The course, planned with local Red Cross authorities, includes weekly reading assignments, periodic written tests, and frequent application of prescribed treatment for emergency accidents. The course lasts 12 weeks and graduates are awarded American Red Cross First Aid Certificates.

Rubber Conservation

United States Rubber Co., Rockefeller Center, New York, N. Y.: A 48-page illustrated book on conservation of rubber products in industry has been published by the U. S. Rubber Co. Complete and explicit suggestions are given for the proper care of these products from initial design through inventory and storage to use, maintenance, inspection and repair. The book, "First Aid to Industry In Rubber Conservation," is completely indexed and all mechanical rubber goods are included. Copies are being mailed to more than 50,000 engineers, plant managers, superintendents and others responsible for production and maintenance industries in all parts of the country.

The B. F. Goodrich Co., Akron, Ohio: A 16 mm., 25 minute film, titled "Keep Em Rolling," which portrays the story of rubber transportation and the vital part it is playing in the war has been produced by the B. F. Goodrich Co. It is available to organized groups upon request.

Pacific Gas and Electric Co., San Francisco, Calif.: Before the first day of the scrap rubber collection campain had ended there was a sizable pile of old tires, shoes, raincoats, and other rubber products in the rear lobby of the Pacific Gas and Electric Co. in San Francisco. Donations were made by employees and patriotic passers-by.

■ ■

War Agencies Handbook

Office of Emergency Management: An "OEM Handbook," describing the functions and organization of the war agencies within the Office of Emergency Management has been issued. The 72-page booklet describes in detail the organization of the War Production Board, the Office of Price Administration and the other constituent agencies of the OEM. Personnel is listed in most cases down to the branch level in each agency. Included are organization charts of the WPB and the Bureau of Industry Branches of the WPB Division of Industry Operations, as well as a chart showing the relationship of the various Federal war agencies. Copies of the booklet may be obtained from the Superintendent of Documents, Washington, D. C., and at OEM field offices.

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Feeding 4000 Japs

Portland (Ore.) Gas & Coke Co.: At the Japanese assembly center in Portland, Ore., heavy duty gas ranges are preparing 12,000 meals a day. Gas is also heating water for washing dishes and aiding laundry work.

Freeing "Frozen" Gas Valves

By GEORGE HILL

Supervisor of Regulators, Consumers Gas Co. of Toronto *

AS ONE of the air raid precautions made necessary by the war, most companies have made it a point to check up more closely on the existing street valves in their distribution systems in addition to installing additional valves where it was thought air raid precautions made such installations advisable.

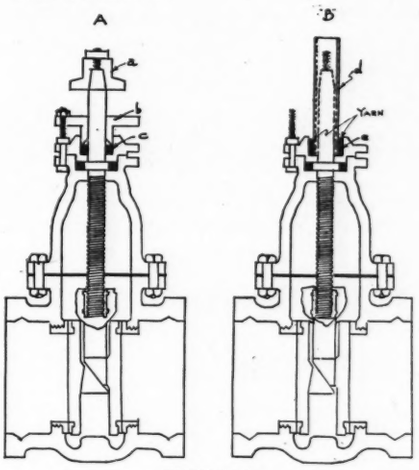


DIAGRAM I.

Fig. 1 shows the method adopted on low pressure valves. The adapter "a" is removed from the spindle. The packing gland "b" and the packing "c" are then removed and all visible dirt and foreign matter cleaned from the stuffing box. A piece of 2-in. steel pipe (d) 24 in. long is placed over the spindle and caulked at "e" with yarn or graphite packing, as shown on the diagram.

About one-half pint of good penetrating oil is poured into the 2-in. pipe and the remainer of the 2-in. pipe is filled with tetralin. The extent to which the valve is seized will be found by observing the liquid diminish in the 2-in. pipe. Above all, patience and time are the essential requirements. We have found that some valves become free in 15 minutes, while a few cases require as long as 20 hours. This treatment was spread over a number of days with treatments of two or three hours a day. It will be found that only a negligible quantity of gas escapes during the operation.

Fig. 2 shows the method used on valves in medium high pressure lines. The same principle as on low pressure valves is used, but with the following refinements: A stop cock "g" is inserted in the 2-in. pipe and a by-pass (h) connected as shown; this is necessary in order to overcome the pressure in the valve. The 2-in. pipe is also bolted to the valve with a bracket (f) to give added support. The 2-in. pipe is filled with liquid in the same manner as in the case of low pressure valves and the 2-in. pipe then capped. The valve on the by-pass is then opened and finally the 2-in. stop cock (g). It will usually be necessary to wear gas masks when installing and removing this device on other than low pressure valves.

With this device valves have been freed in sizes 8, 12, 14, 16, 20 and 24-in. A few large valves, which probably

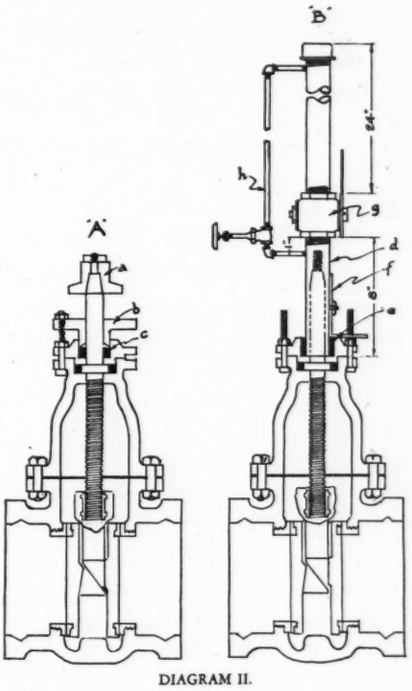


DIAGRAM II.

had not been operated since their installation, could not be turned with the standard key even with pipe extensions on the handle and operated by several men. It is the practice of most companies to check their street valves periodically so as to insure their being in proper condition when needed; there are always some valves which have outlived the purpose for which they were originally installed. Such valves have been neglected but, under present conditions, they may prove of value. The method described will assist in restoring them to normal condition.

*Presented at the 35th Annual Convention, Canadian Gas Association, Windsor Hotel, Montreal, Quebec, June 4 and 5, 1942.

A fire squad of utility men tackles an "incendiary" on the roof of the 16-story Public Service building in Portland, Ore., during an air raid drill last month.

Portland Utilities Drill For Air Raids

By DONALD M. JOHNSTON

Portland Gas & Coke Co., Portland, Oregon

TYPICAL of the lead that private utilities have taken in civilian defense was a recent air raid drill staged in the 16-story Public Service building in Portland, Ore., which houses principally the central offices of Portland Gas & Coke Co. and two electric utilities.

Witnessed and highly praised by representatives of the U. S. Army Engineers protective division and local civilian defense organization, the event was said to be the first of its kind in the Northwest. In fact, the evacuation plan was declared a model for other buildings to follow.

Eight minutes after the alarm sounded, the building's 1000 occupants had been orderly evacuated by stairway to the designated safe areas (the 6th to 12th floors, inclusive), although speed was not the objective. Newspaper cameras "shot" various phases of the activity, while a radio station made a complete "play-by-play" transcription for broadcasting later in the day.

Action included floor wardens carefully herding their "flocks" to designated safe areas, guards directing the flow of stairway traffic, messengers maintaining communications with the control center, Red Cross first aid squads administering treatment to "victims," and completely equipped fire squads controlling "reasonably accurate facsimiles" of incendiary bombs.

Behind the calm and methodical movement of occupants were weeks of planning and a well-drilled organization of more than 200 persons working under J. Ralph Brown. Joseph A. H. Dodd, gas company credit manager, is in charge of first aid; C. H. VanHooren of the commercial department is assistant police warden; Cecil Griffith of the accounting department is in charge of communications; and Frederick A. Fisher of the company's legal firm is fire warden. About 50 members of the gas company family hold assignments in the organization.

Cooperation among the three utilities and tenants not so identified was 100%, with many of the latter serving in various capacities. Occupants of each office open windows, to relieve bomb blast concussion, close venetian blinds, turn out lights and unlock doors before leaving their offices.

Because bombing is likely to be accompanied by power failure, the building's five high-speed elevators play no official part in the evacuation. For the same reason, at the warning signal, guards light kerosene lanterns at each landing to illuminate the stairways. The messenger service is to avoid dependence upon telephone service.

The Red Cross trained first aid squads are stationed on each occupied floor and also the vacated first floor. Extra squads are held in reserve at the 9th floor control center, near which is a field hospital to handle more serious cases.

As the building has been designated a public air raid shelter to accommodate an additional 1000 persons, the heaviest concentration of guards is on the main floor to direct incoming traffic to refuge areas. This is considered a difficult assignment because hysteria must be prevented among undrilled outsiders and their movements made to coincide with the scheduled movements within the building. Guards on upper floors, after traffic ceases, serve as fire watchers.

The floor warden and his assistants (one for each 15 persons) are responsible for their charges. The group must be assembled, accounted for and then led on schedule to the appointed safe area. Even there the wardens are responsible for keeping order, preventing panic and upholding morale. In fact, the floor warden's job ends only after his group has re-traced its steps following the all-clear signal.

Most dangerous assignments are those of the fire and building maintenance squads, as their duties place them in exposed positions. Fire squads are stationed on the roof and lower four floors with a roving squad at the control center for emergency duty. Each squad is equipped with stirrup pump, safety goggles, buckets, crowbars, axes, shovels, gloves, coveralls and flashlights. Auxiliary supplies of sand and water are spotted on each floor.

Building maintenance squads are charged with maintaining and operating all utility services in the building and making emergency repairs.

■ ■

Synthetic Rubber

The Office of the Petroleum Coordinator is making a survey to determine the nature and extent of existing facilities and equipment adaptable to the production of raw materials to be used in the manufacture of synthetic rubber. Statistics will be gathered on the availability of raw materials, the extent to which plant alterations will be necessary, the suitability of the processes that can be used, the demands for additional critical materials that may be required and probable investment and operating costs.

That some concrete progress has been made by OPC is indicated by the rumor that one large natural gas company is developing plans for the production of butadiene, one of the essential materials used in the manufacture of synthetic rubber.

Shutting Off Gas by Use of Semi-Solids

THE experiment* outlined below had its inception in the work of H. B. Andersen, The Philadelphia Works Co., and C. S. Goldsmith, Brooklyn Union Gas Co., in shutting off gas mains by pumping grease into the mains. Our thoughts were led in search of a material which would be cheap and, above all, a material which could be rapidly and easily removed from the mains. In addition, due to the high cost, especially in Canada, of power-operated pumps for introducing the grease into mains we sought some cheap method of pumping.

The following is a description of the process by P. W. Geldard, assistant engineer of distribution, under whose direction the experiments were made:

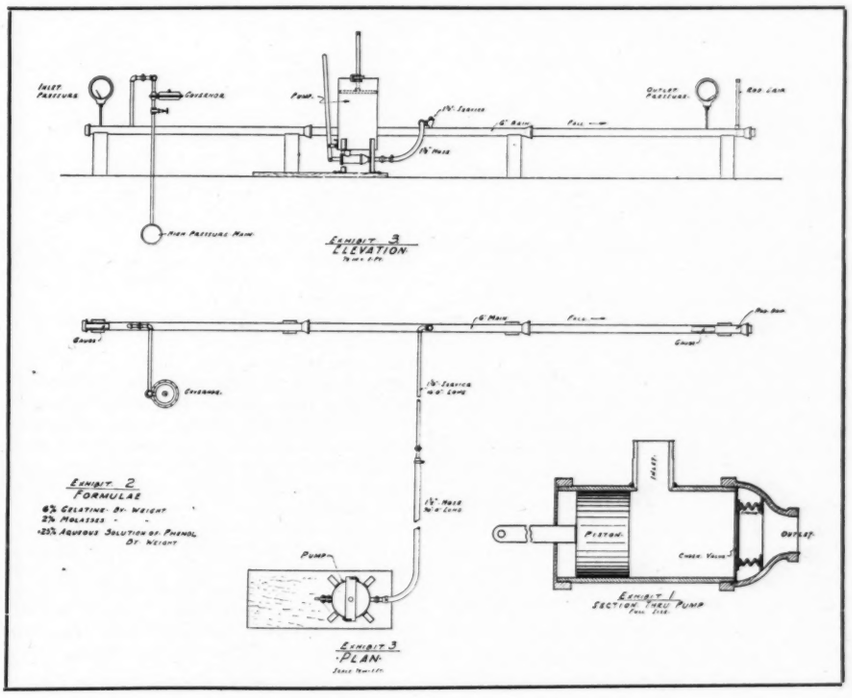
After many experiments, George Hill, inspector of valves, governors and manholes, The Consumers Gas Co. of Toronto, developed a material which seems to answer our requirements. It is cheap and made from easily obtained materials, gives a perfect shut-off and can be easily removed from a main. The formula is 6.0% by weight of gelatine, 2.0% by weight of molasses, and .25% by weight of aqueous solution (15%) of phenol. The gelatine which gives body to the mixture is crystal powder No. L 2333, a product of Meredith Simmons & Co., Ltd., Toronto. The molasses, which gives adhesive qualities to the mixture, is any commercial molasses. The phenol solution is added to inhibit the formation of bacteria. To make a 100-lb. batch, pour 4½ gallons of cold water into a container, sprinkle the gelatine into the water, stirring constantly. Allow mixture to settle for 30 minutes, then add molasses and phenol solution, plus 4½ gals. of boiling water. Stir thoroughly for three minutes and then allow to set for three hours. The material, as made, will dissolve in water at 100° F. and will set in some three hours at a temperature of 65° F. When ready to use, mash to the consistency of crushed ice and place in pump.

Our garage foreman made up a pump as shown on the sketch. The container consists of a 10-gal. oil drum and the piston and cylinder consist of two pieces of machined 3-in. steel pipe. The legs of the pump were screwed to a plank and the pump was operated by one man turning down the follower plate while another man worked the pump lever. We arranged a piping set-up as shown on the sketch. Three lengths of 6-in. cast iron pipe were laid on a slight grade with a rod drip at the lower end. Recording gauges were set at each end of the cast iron pipe. A gas line with a governor for controlling pressure was connected to the upper end of the cast iron pipe. At the center of the cast iron pipe a 1¼-in. service 16 ft. long was connected at right angles to the cast iron pipe and from the end of this ¼-in. service 30 ft. of 1½-in. rubber hose was run to the pump.

The inlet pressure to the cast iron pipe was set at 5-in. water gauge and a small leak, about 25 cu. ft. per hour, was introduced at the lower end of the cast iron pipe. The idea being that as soon as a shut-down in the main had been achieved, a drop in pressure to zero would be registered at the pressure gauge at the lower end of the cast iron pipe. Also the slightest break-through in the stoppage in the main would show the time that the break-through occurred. The set-up also enabled us to raise the inlet pressure and find out at what pressure a break-through would occur.

During the experiment, the outside temperature varied between 45° and 70° F. The pump was started and the following results observed: The 30 ft. of rubber hose was filled with shut-off material in 2 minutes and the 16 ft. of 1¼-in. pipe in a further 1½ minutes. The first drop on the pressure gauge was registered 7½ minutes after the pump was started and a complete shut-off achieved 9½ minutes from the start of the pump. At this point 60 lbs. of material had been used, of which 30 lbs. were in the hose and service and the remainder in the main. The set-up then stood for 49 hours with absolutely no break-through occurring. At the end of this time the 1½-in. hose which was filled with material was replaced with an empty hose to simulate conditions which would be used in service. The pump was filled with boiling water and started. After two minutes had elapsed, pressure at the lower end of the 6-in. main began to build up, denoting a break-through at the stoppage. The stopping material was completely removed in 10 minutes by being pumped out of the main through the rod drip. Fourteen gals. of water were required to remove the material. The experiment was repeated again, and after standing with a complete shut-down for 24 hours, the inlet pressure was raised until a break-through occurred. A slight seepage of gas, about 10 cu. ft. per hour, occurred when the inlet pressure reached 12 ins. water gauge.

There has been no opportunity as yet to experiment under actual service conditions. For instance, we have yet to find out how much water will be required to dissolve and move the material say 500 ft. to a drip.



*Presented at the 35th Annual Convention, Canadian Gas Association, Windsor Hotel, Montreal, Quebec, June 4 and 5, 1942.

EXPERIENCES WITH BUTANE-AIR STANDBY

By M. FRANK KNOY

Gas Department, City of Long Beach, California

IN January, 1941, the City of Long Beach, Calif., put into standby service their butane-air gas plant. The objective of providing a completely interchangeable substitute for ordinary natural gas has been to some extent realized in this plant.

A full year's experience in using this substitute gas for standby has been interesting and informative to ourselves, and the author believes such a scheme may offer attractive possibilities for others in the gas business. Therefore, there is presented herewith certain salient points of our experience for whatever they may be worth.

Heat Value of Primary Mixture: For the sake of simplicity, an attempt has been made to use the heat value of the primary burner mixture as a guide to satisfactory burner performance. If the average domestic appliance is set to give 175 B. t. u. per cu. ft. of primary mixture, it is assumed, on the authority of previous experimenters, that a substitute gas giving the same heat value for the primary mixture would be satisfactory for domestic use. We, therefore, developed the formula,

$$\frac{H-175}{\sqrt{G}} = C,$$

in which

H = heat value of a gas,
G = the specific gravity,
175 = the heat value of primary mixture,
C = a numerical constant.

For the detailed steps in the derivation of this formula, see the author's article, "Combustion Experiments with Liquefied Petroleum Gases" (*GAS*, June, 1941, p. 14).

By using the formula, a graph was plotted as AB, Fig. 1, giving the required heat value to render the substitute gas, of whatever gravity, interchangeable with the regular gas supply.

Butane-air mixtures containing 40% to 50% butane will have heat value-gravity relations lying along line CD. Where this crosses the interchangeability curve AB is the approximate mixture to give 175 B. t. u. in the primary mixture. Likewise, propane-air mixtures will give heat value-gravity combinations as shown by line EF. Where this line crosses the interchangeability curve AB would indicate the richness of a propane-air mixture required to give 175 B. t. u. in the primary mixture.

Various mixtures of butane and propane, such as the commercial butanes, would give heat value-gravity combinations lying between CD and EF.

As will be brought out later, it was possible to get good results from gas mixtures that fall anywhere in the band between AB and A^1B^1. The best results seem to be from mixtures falling about midway of this band on the higher gravities.

Thorough and repeated laboratory experiments, as reported in *GAS*, June, 1941, proved this hypothesis to be workable for the gases of the paraffin series and at least sufficiently accurate to serve as a point of departure for the practical operation of the butane-air mixing plant.

During the past winter a considerable volume of butane-air was made and used. (See Table No. 1.) The butane-air mixture was fed either directly into the mains or into the holder along with the incoming natural gas. In no case was the butane-air sent out without some admixture of natural gas. The percentage of butane-air in the sendout varied anywhere from only a few per cent to as high as 70%. In no case were there many consumer complaints, except the few times of short duration when mechanical trouble at the plant caused undue richness or leanness of the butane-air mixture.

There are approximately 58,000 consumers on our system, and it is estimated that from 25% to 50% of them received some of the butane-air gas on each run. Naturally, with this number of consumers using the gas, it was not possible to make any radical experiments to determine how rich or how lean a mixture could be tolerated.

It was found, however, by cautious trials that a few complaints of smoky fires would come in when the gas was carried as rich as 1580 B. t. u. and a gravity of 1.485. Likewise, a few complaints of popping back or extinguishing of pilots were received when we carried the gas as low as 1500 B. t. u. and a gravity of 1.46.

In case of the smoky fires, it is our opinion that they were adjusted more or less rich on the natural gas. Also, we believe that those fires popping back were adjusted lean on the natural gas. We have concluded that supplying butane-air of correct gravity and heat value is a sure way to hear from the poorly adjusted appliances, but will cause no trouble whatever from those appliances that are correctly adjusted.

Our normal gas supply this winter has averaged 1080 B. t. u. and a .70 gravity. Assuming that the well-adjusted appliance on this gas has 175 B. t. u. per cu. ft. of primary mixture, then the author calculates that on the 1580 B. t. u., 1.485 gravity gas the appliance will have 185 B. t. u. in the primary mixture. This got some complaints of smoky fires, as is to be expected. The 1532 B. t. u., 1.472 gravity gas gives 180 B. t. u. in the primary mixture and elicits no complaints. This is about where we normally run.

The 1500 B. t. u., 1.46 gravity gas gives 177 B. t. u. in the primary mixture. It causes no trouble in well-adjusted appliances, but may pop back or lift in those that have a lean adjustment on the normal gas supply.

According to the theory that 175 B. t. u. in the primary mixture is correct for all gases, the 1532 B. t. u., 1.472 gravity gas normally made is slightly on the rich side. Observation on closely adjusted appliances bears this out. But, since it is believed that a rich fire is less hazardous and much less annoy-

M. FRANK KNOY

MR. KNOY in this article gives valuable operating data developed from the use of the City of Long Beach's liquefied petroleum gas standby plant during last winter's peak load periods. It also demonstrates the feasibility of plant control as described by the author in his article, "Combustion Experiments With Liquefied Petroleum Gases," which appeared on page 14 of the June, 1941, issue of GAS. In that article Mr. Knoy developed a useful and practical relationship between gravity and heating value of butane-propane-air mixtures, as utilized satisfactorily in gas appliances adjusted to natural gas, which relationship greatly simplifies control of a standby plant.

A further discussion on the Long Beach standby plant was published in the February, 1941, issue of GAS, page 21. In this article E. S. Bryant, assistant superintendent of the Long Beach gas department, outlined reasons why a liquefied petroleum air-mix plant was selected for standby purposes.—Editor.

ing to the consumer than one that pops out, we purposely keep the gas on the rich side. Any slight irregularity in heat value will still leave it rich enough to burn normally.

Usual practice now is to keep the heat value at 1520-1530 B. t. u. and the gravity at 1.47, approximately. Gas of this quality gives no trouble at all up to 70% of the sendout. We believe that in an emergency gas of this quality could be sent out 100% without serious consequences. Under normal conditions, we plan to mix at least 30% of natural gas with it.

Fig. 2 shows a 20-hour record of the sendout gravity taken at the discharge of the main compressor plant where the natural gas-butane-air mixture enters the system. The reader will note almost instantaneous changes of great magnitude in gravity when the compressors were started or stopped, yet the trouble log for that day shows not a single consumer call traceable to the quality of the gas. In each case a poorly adjusted appliance occasioned the call. Appliances adjusted during the periods of high gravity have since given no trouble on the regular gas supply. Thus it can be seen that if a substitute gas is in reality interchangeable with the regular gas supply, it does not matter in what proportions the two are fed into the system, so far as the well-adjusted domestic appliance is concerned. In laboratory tests we have repeatedly changed from natural gas of .70 gravity to butane-air at 1.47 gravity, instantaneously, without so much as a flicker on any appliance.

Butane-Air Mixture Actually Leaner: Naturally we wondered why a primary mixture of butane-air having a heat value of 177 B. t. u. has more of a tendency to pop back than a primary mixture of natural gas and air of the same heat value. We find two possible reasons. In the first place, a butane-air mixture has a slightly higher rate of flame propagation than a natural gas-air mixture of the same degree of richness. In the second place, the two mixtures are not of the same degree of richness; the butane-air mixture being the leaner of the two, and thus further increasing its rate of flame propagation. It should be noted here that so long as a gas-air mixture has less than the theoretical air required for complete combustion, the rate of flame propagation increases as the mixture is made leaner until the approximate full air requirement is reached. Beyond this point the addition of excess air causes a progressive reduction in the rate of flame propagation until the limit of flammability is reached.

To see just how much leaner the butane-air mixture is, let us examine the two samples briefly. Assuming 3200 B. t. u. per cu. ft. of commercial butane and 1080 B. t. u. per cu. ft. of natural gas, the comparison may be tabulated as shown in Table No. 2.

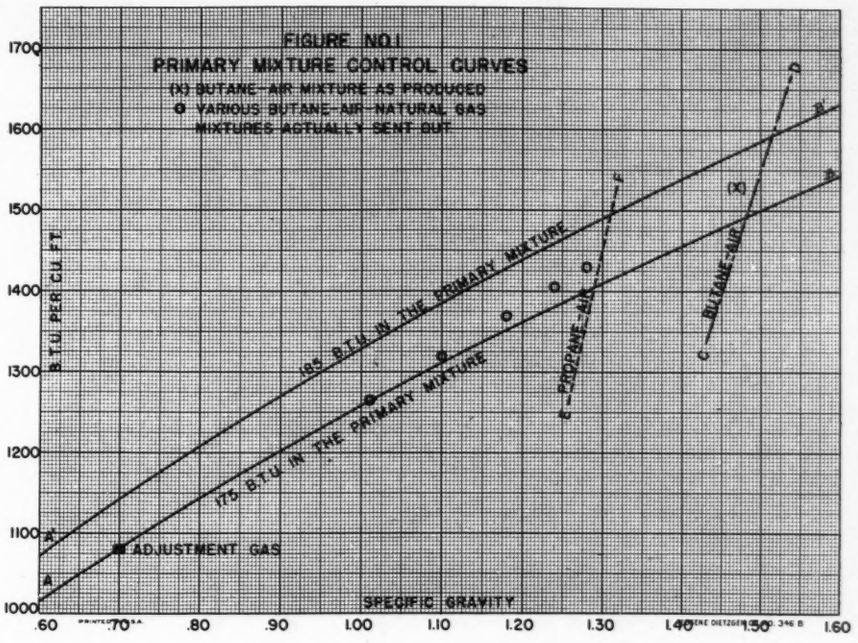


FIG. 1. Primary Mixture control curves.

It is only logical then that we should have to carry the butane-air mixture a little rich to get away from the danger of popping back on some appliances. You will note from the position of point X, Fig. 1, that we have found it best to maintain the butane-air mixture rich enough to give about 180 B. t. u. per cu. ft. in the primary mixture, assuming the appliance is set for a 175 B. t. u. per cu. ft. primary mixture on natural gas.

The author has gone somewhat into detail on this subject because he believes that this rule concerning the heat value of the primary mixture may have to be modified somewhat when the gas in the mains contains considerable air. In the case of butane-air as it is used at Long Beach, there is 6% to 7% of the total air required for combustion already in the gas. When it inspirates an additional 50% of the required air at the primary air mixer, it will have 56% of the total air required, as shown in Table No. 2. In other words, while the two gases inspirated about the same air at the primary mixer, the primary butane-air mixture is the leaner because of the air carried by the gas in the mains.

To put it another way, if the butane were mixed with an inert gas such as nitrogen or flue gas, we could carry a lower heat value mixture both in the mains and in the burner head than we can with the present butane-air mixture to get the same burner performance.

Calculating the B. t. u. per cu. ft. of Primary Mixture: If one is to use the heat value of the primary mixture as a criterion of burner performance, then he should have a convenient means of calculating this value. L. J. Willien, gas engineer, Public Utility Engineering & Service Corp. of Chicago, has an accurate method of doing this which he has used for years. For my own use I have developed a compact and simple formula which I find very satisfactory. It is as follows:

$$Pt = \frac{Ht\sqrt{Ga}}{\frac{Ha-Pa}{Pa}\sqrt{Gt}+\sqrt{Ga}}$$

in which

Pa=B.t.u. per cu. ft. of primary mixture on adjustment gas.
Pt=B.t.u. per cu. ft. of primary mixture on test gas.
Ha=B.t.u. per cu. ft. of adjustment gas.
Ht=B.t.u. per cu. ft. of test gas.
Ga=Specific gravity of adjustment gas.
Gt=Specific gravity of test gas.

By using this formula one is able to plot a curve for corresponding heat values and gravities to give any desired heat value on the primary mixture, as curve A^1B^1 in Fig. 1.

Mixing Butane-Air with Natural Gas: The Long Beach plant is so arranged that when butane-air is made directly into the mains, it is mixed with the natural gas coming from the compressor plant in a mechanical mixer located at the plant outlet. Any desired proportion between the two gases can be

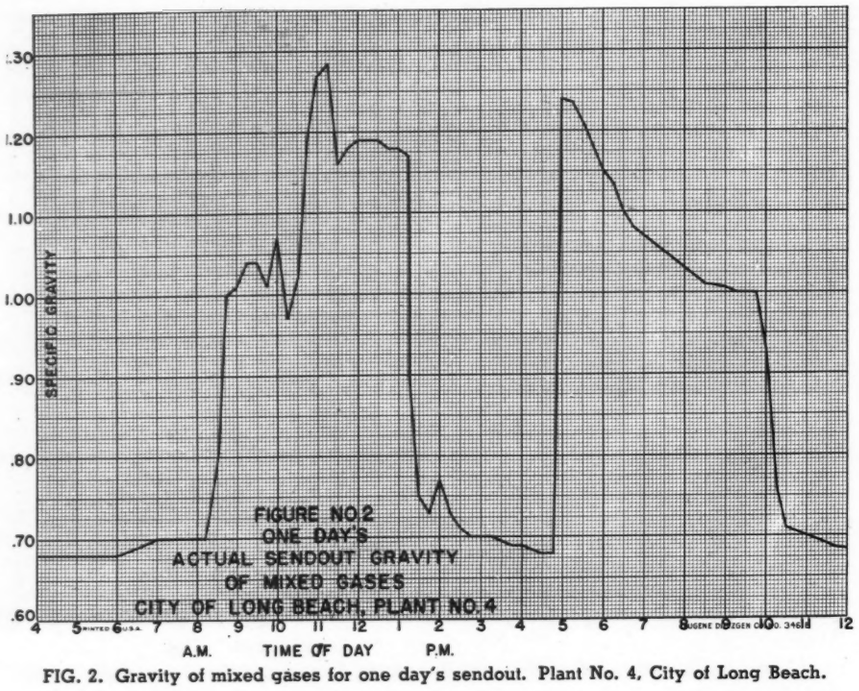


FIG. 2. Gravity of mixed gases for one day's sendout. Plant No. 4, City of Long Beach.

TABLE NO. 1

Month	*Number of Runs*	*Average B.t.u.*	*Net M c.f. Gas Made*
October	7	1547	3,032
November	12	1542	3,945
December	14	1528	5,966
January	11	1526	4,542
February	13	1533	6,933
March	4	1528	1,291
		Total	25,709

Average B. t. u. 1532 Average gravity 1.472 approximately

TABLE NO. 2

B.t.u. per	*B.t.u. per cu. ft. of mixture*	*Total cu. ft. air for combustion*	*Cu. ft. of gas in mixture*	*Cu. ft. of air in mixture*	*% of total air in primary mixture*
Air-natural gas primary mixture	175	1.675	.162	.838	50
Butane-air primary mixture	175	1.678	.055	.945	56.3

easily maintained by varying the output of either or both.

Butane-air can also be made directly into the 10,000,000 cu. ft. holder without any premixture with natural gas. We find, however, that when this is done there is a tendency for butane-air to remain segregated in a layer near the holder bottom. Of course, some diffusion is bound to take place and there is some turbulence where the gas enters the holder, which causes a certain amount of mixing. But the small agitation and the natural rate of diffusion are not sufficient to cause even mixing of the two gases.

The butane-air plant was shut down at 1:10 p. m. on the day represented by Fig. 2. No gas was pumped out of the holder until 4:45 p. m. During this three and one-half hours there was practically no dilution of the lower strata of gas by diffusion. In spite of the fact that only about 1,000,000 cu. ft. of butane-air was added into a holder containing approximately 6,000,000 cu. ft. of natural gas, and the fact that the compressor suction is approximately 175 ft. from the butane-air inlet, within a few minutes of the time butane-air was turned into the holder the compressors were getting 40% butane-air. Later this increased to 60% or 70%. Thus by the time the plant was shut down at 1:15 p. m. about half of the 1144 M c. f. of butane-air made had been sent out. Yet when the holder compressors were again started up at 4:45 p. m., and though the butane-air in the holder was only about 10% of the total contents, the sendout gas was still 60% butane-air. This shows that diffusion had not given any dilution at all at the bottom of, say, a 20-ft. layer of the denser mixture which was left at the holder bottom when the plant was shut down at 1:15 p. m.

In one rough check made we let the mixture stand over night and found the same condition of marked stratification still prevailed. We find that the only way to be sure what mixture of butane-air and natural gas we will be able to draw from the holder is to mix the two gases to near the desired proportion as they go into the holder. In this way we are assured of dilution by at least 30% natural gas which we have arbitrarily set as the minimum desired.

■ ■

Humble Oil to Construct Large Butyl-Rubber Plant

HUMBLE Oil & Refining Co. recently closed contracts for the construction of a butyl-rubber plant for the Government at a cost of approximately $16,000,000. Upon completion this plant will be leased by Humble and operated by it under a contract with Rubber Reserve Co., subsidiary of Reconstruction Finance Corp.

This arrangement covers the second plant to be operated by Humble for the Government in connection with the production of synthetic rubber. The first plant, which likewise involved investment by the Government of approximately $16,000,000, is for the production of butadiene, an ingredient of synthetic rubber of the buna type.

Butyl is one of the newer types of synthetic rubber. Research work now in progress may develop butyl rubber into a product satisfactory for use in automobile casings. For the present, however, its greatest usefulness in the war program is in the manufacture of rubber specialty products and in releasing natural rubber and buna rubber for use in automobile tires.

■ ■

San Antonio Public Service May Sell Gas Properties

The San Antonio (Texas) Public Service Co. was recently notified that the City of San Antonio was interested in the acquisition of its gas and electric properties, or at least as much of the set-up as the municipality would be permitted under the law to acquire.

The notice was in a letter signed by Mayor C. K. Quin addressed to C. N. Chubb, president of the utility corporation. He was asked to transmit this information to the American Light & Traction Co., a holding company, which owns the 83,000 shares of common stock of the San Antonio firm.

■ ■

Michigan Consolidated Co. Extends Michigan Holdings

Michigan Consolidated Gas Co. has purchased the gas systems in Mt. Pleasant, Clare, Ludington and Greenville from the Gas Corp. of Michigan, which will be dissolved.

Gas Corp. was owned by the Great Lakes Utilities, Inc., of Philadelphia, Pa. The sale was reported to have been at a price of $700,000. Ludington is the only one of the four units taken over not serviced by natural gas.

HEAT EXCHANGERS AND COOLING TOWERS

(In Compressor Plant Installations)

By W. E. DUNN and HUGH R. LAMBERTH

The Fluor Corp., Ltd., Los Angeles, California

W. E. DUNN

HUGH R. LAMBERTH

METHODS OF cooling water for jacket water and other compressor station and miscellaneous uses are outlined in this article. For further discussion on cooling tower construction, selection, and performance, the reader is referred to an article by Mr. Lamberth in the September, 1940, issue of GAS, page 37.

Mr. Dunn, vice president and manager of the Mid-Continent division, has been with the Fluor Corp., Ltd., 10 years. A graduate of the Michigan School of Mines, his experience has included two years of construction work in Mexico and six years with Richfield Oil Co. of California.

Mr. Lamberth, a graduate of the U. S. Naval Academy in 1924, became affiliated with the Fluor Corp., Ltd., in 1929 as assistant sales manager. He is now manager of the corporation's cooling tower division. Presented before American Petroleum Institute Division of Production.—Editor.

THE normal application of heat exchangers and cooling towers in a compressor plant covers engine and compressor jacket water, lubricating oil, and gas cooling.

Jacket water cooling in particular has been subject to a wide divergence of opinion as to what constituted good operating practice. Recognized usage as to engine temperatures and quantity of water to be circulated has in recent years been confined to reasonable narrow limits. The fundamental problem is the same for any two like engines, regardless of location, and specifications setting forth operating conditions to be met should be carefully considered before any cooling equipment is purchased.

There are two distinct parts to setting up cooling requirements.

1. Determination by the operator of the exact engine operating conditions desired. Good practice falls within a close range of variation which should be determined from the engine manufacturers' recommendation, the experience of others as well as the operator's own experience. Gas cooling requirements are of course variable from plant to plant but can be accurately determined by the specific job to be done.

2. Selection of equipment to meet the operating conditions previously determined upon. This often requires some ingenuity. Local conditions of water supply, available space, atmospheric cooling factors and other variables affect the type, size and arrangement of equipment materially. Equipment can and should be selected to meet the operating condition specified. Conversely, engine operating conditions should not be changed, out of the good practice range, to suit the cooling equipment. This latter procedure invites expensive maintenance which will almost certainly offset any gain in first cost or convenience realized by improper application of equipment in the cooling system.

The following outline describes the usually possible water cooling systems that can be employed:

A. Open circulating system.

1. Cooling water available: (a) from river, wells, lake, etc.
2. Recirculating water cooling system necessary: (a) open pond, (b) spray pond, (c) spray tower, (d) atmospheric deck type tower, (e) mechanical draft tower.

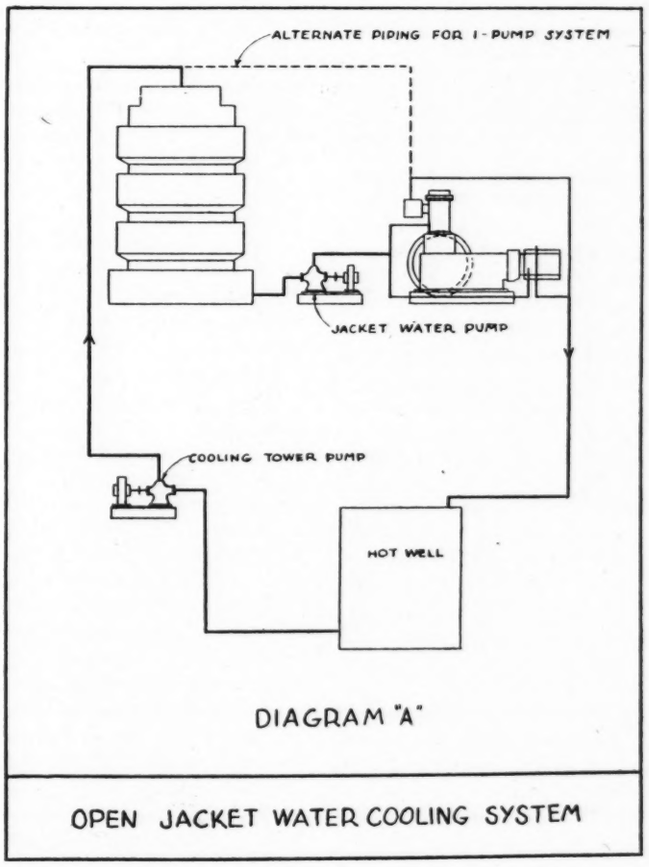
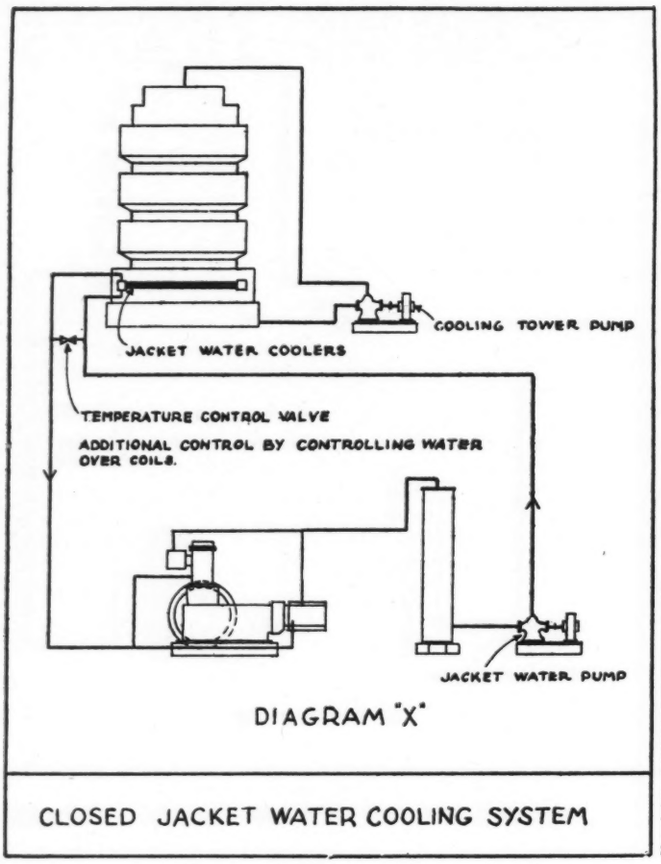
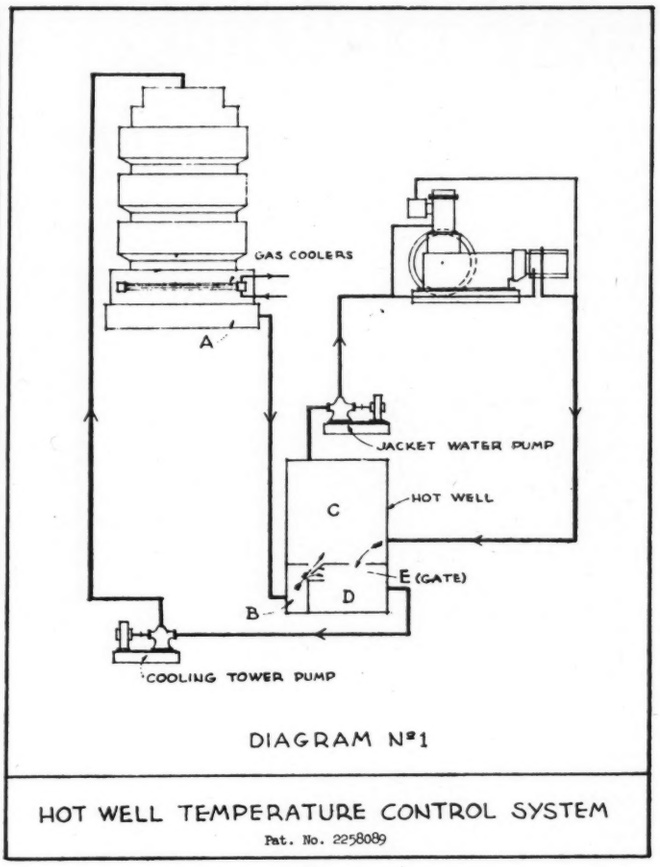


FIG. 1.



CLOSED JACKET WATER COOLING SYSTEM

FIG. 2



HOT WELL TEMPERATURE CONTROL SYSTEM

Pat. No. 2258089

FIG. 3

B. Closed circulating system.
   1. Raw cooling water available for use with heat exchangers.
   2. Recirculating water cooling system necessary as tabulated under A-2-(a) for use in combination with heat exchangers.
   3. Air-cooled heat exchangers: (a) dry air, (b) humidified air, (c) evaporative type.

The open system designates the system wherein raw water is circulated through the jackets and then either wasted or cooled evaporatively in an open pond or tower and recirculated.

There are relatively few compressor plant locations convenient to a proper supply of cooling water that can be used once and wasted. Such a supply of water, if available, should—

1. Afford a continuously dependable quantity to keep the jacket temperatures within the good practice range.

2. Be free at all times from silt, sand and foreign matter.

3. Contain a low content of scale-forming minerals and have a substantially neutral pH value.

Where a recirculating water cooling system is necessary, the open system employing one of the methods outlined in A-2 above represents the lowest first cost in equipment and usually a slightly lower pump horsepower requirement. Fig. 1 shows a typical open jacket water cooling system.

The closed circulating water system designates the system where circulating water used in the jackets is cooled in heat exchangers by an outside source of cool water or air, thus allowing the circulating water system to be kept clean and free from scale. Fig. 2 shows a typical system.

Heat exchangers used in compressor plant work, and installed in conjunction with a source of cold water as described above, are of three general types:

1. Pipe coils.

2. Open or atmospheric type cooling sections.

3. Closed or shell and tube type exchangers.

In any combination of towers and coolers, adequate jacket water temperature control is essential, and especially so in the winter months.

There is one patented hot well flow system which has been very successfully used and which was developed particularly for use in systems where jacket water is on an open system and cooled in a tower in which gas cooling coils are installed. The result desired is to keep (1) a steady, continuous flow of warm water through the jackets, and (2) a flow of colder water over the coils. Referring to Fig. 3, one will note that cold water from the cooling tower basin A flows by gravity to the cold section of the hot well.

The flow of cold water from B is proportioned between section C and section D by a swing valve or gate E, which can be manually or automatically set to maintain a constant water temperature in C.

The jacket water circulating pump takes suction from C and delivers a constant amount of water to the jackets. The hot jacket water discharge flows back to the same section C. Any excess return hot water in C flows by gravity into section D where it mingles with the cold tower water return from section B. The water level in B is higher than in C, which in turn is higher than in D.

The tower circulating pump takes suction from D and delivers it over the cooling tower and hence over the gas cooling coils.

By adjustment of one valve E, (1) the water temperature to the engines is regulated to the desired point, (2) the coldest remaining water is delivered back to the cooling tower, which provides coldest possible water to the gas coils, (3) both pumps run continuously at a constant capacity without the necessity of throttling or by-passing.

Registry of Rare Chemicals Is Armour Research Service

THE Armour Research Foundation, 35 West 33rd St., Chicago, Ill. (affiliated with Illinois Institute of Technology), has established a clearing house of information in the interests of scientific work of the nation under the name of the National Registry of Rare Chemicals. Maintained without charge, the service will be located at the Chicago office of the Foundation and Dr. Martin H. Heeren, chairman, chemical engineering research in the Foundation, has been named director of registry, according to Harold Vagtborg, director, Armour Research Foundation.

The registry does not sell or buy materials, but merely maintains an indexed file of their sources. Chemicals which can be found in the catalogs of major supply houses are not included in the registry. The file is regarded as a confidential trust and is not open to general inspection, but specific inquiries are answered by the registry.

It is essential to the success of the registry that all workers in every branch of science using chemicals make available information on such rare materials possessed. When possible, the approximate number of grams, pounds or tons available should be indicated. Manufacturers of chemicals should supply data on new additions to the line until their next catalogs are issued, and the registry should be notified when those have finally found their way into catalogs.

■ ■

Electric Utility Building Up 23% Over 1941 Figure

The electric utility industry, in an effort to meet the mounting war-time demand for power, plans to spend $1,069,309,387 on construction this year, an increase of about $200,000,000, or 23%, over actual expenditures in 1941, according to the Federal Power Commission.

The construction is expected to add 3,735,035 kilowatts to the nation's generating capacity, compared with an estimated addition of 2,447,310 kilowatts last year. Private utilities are scheduled to expend $621,945,204 this year against $591,918,548 in 1941, and public utilities, $447,364,183 compared with last year's $227,668,306.

■ ■

FPC Disallows Rate Increase For New York Corporation

The Federal Power Commission has announced its order disallowing proposed new rate schedules which would increase the price of natural gas purchased by the New York State Electric & Gas Corp., Ithaca, N. Y., from New York State Natural Gas Corp., Pittsburgh, Pa., and the Keuka Construction Corp., also of Pittsburgh. The order also disallowed the rate increase for natural gas purchased by Keuka from New York Natural. The increased rates, which were to have become effective Jan. 1, 1942, were suspended by the commission's orders of Dec. 30, 1941.

■ ■

Joaquin-Logansport Gas Field Potentials Are Being Studied

Study of the industrial potentials of the extensive Joaquin-Logansport gas field near Center, Texas, is in progress by a crew of engineers from the U.S. Bureau of Mines, Washington, D. C. Report is to be furnished Harold Ickes, Petroleum Coordinator for War, to furnish a clarified perspective of the possibilities of development there of some major war industrial establishment.

TABLE NO. 1. SALES OF LIQUEFIED PETROLEUM GASES, 1935-41.

(Thousands of Gallons)

Year	*Butane*	*Propane*	*Butane-propane mixtures*	*Pentane*	*Total*	*Percentage gain over previous year*
1935	34,084	26,814	13,492	2,465	76,855	36.2
1936	40,200	36,502	27,375	2,575	106,652	38.8
1937	45,399	46,474	46,694	2,833	141,400	32.6
1938	52,768	54,130	56,050	2,253	165,201	16.8
1939	71,351	79,323	69,020	3,886	223,580	35.3
1940	77,056	109,216	123,348	3,836	313,456	40.2
1941*	112,244	126,969	219,252	4,387	462,852	47.7

*Figures for 1941 subject to revision. Prepared by A. T. Coumbe, Petroleum Economics Division.

LP-Gas Gains Momentum in 1941

THE unusually active market for liquefied petroleum gases prevailing in 1939 and 1940 continued with increased momentum into 1941, when sales of 462,852,000 gals. were reported, a 48% gain over the 1940 total, according to a survey made by the Bureau of Mines, Department of the Interior. It is believed that the 1941 volume of deliveries to consumers would have been even greater had equipment for handling and using liquefied petroleum gases been freely available and diversions for consumption as raw material in manufacture of high-octane gasoline and other products been less of a factor.

Domestic requirements for cooking, water heating, and other household uses were 65% above the 1940 level. A 41% increase in deliveries of liquefied petroleum gases for industrial fuel in 1941 compared with a 12% increment in 1940 is largely the reflection of stepped-up defense activities. Gains in sales of liquefied petroleum gases to manufactured gas companies and to chemical manufacturers were 25 and 28%, respectively.

Butane deliveries made up about 24% of total sales of liquefied petroleum gases in 1941 or the same proportionate share as in 1940. The propane total declined from 35% of all deliveries to 27% in 1941, and a corresponding gain (39% in 1940 and 47% in 1941) is found in the relative quantity of butane-propane mixtures reported in 1941.

The marketed production of butane increased from 77,056,000 gals. in 1940 to 112,244,000 in 1941 or 46%, compared to a below-normal gain of 8% in 1940. A greatly increased demand for butane for domestic consumption (59% over 1940 requirements), industrial fuel (41% over 1940), and for internal combustion-engine fuel (67% higher than in 1940) were all-important factors causing the sharp rise in butane sales in 1941. The demand for propane increased 16% from 109,216,000 to 126,969,000 gals.

An unusually high gain in sales of butane-propane mixtures in 1940 was repeated in 1941, when deliveries increased from 123,348,000 gals. in 1940 to 219,252,000 or by 78%. The quantity of butane-propane mixtures reported for domestic use more than doubled in 1941, increasing from 43,133,000 gals. in 1940 to 87,673,000 in 1941 and the latter amount was not far below the total for propane.

Butane-propane mixtures sold for industrial fuel increased tenfold from 3,508,000 gals. in 1940 to 35,287,000 in 1941. It is evident that mixtures of butane and propane are replacing butane as industrial fuel, as greater quantities of the latter gas are now being diverted for raw material and blending agents in the making of various products.

War conditions appear to have had no adverse effect upon liquefied gas sales by California marketers in 1941, according to Edward T. Knudsen, supervising economic analyst of the U. S. Bureau of Mines, Los Angeles. In fact, sales to the Federal Government contributed materially to the establishment of a new high sales record of 102,885,000 gals. (excluding exports).

The increase in sales in 1941 over 1940 amounted to approximately 42%, compared with the 50% increase in 1940 over 1939, but the volume gain in 1941 was considerably higher than in 1940, 30,288,000 gals. compared with 24,100,000 gals. The largest percentage gain, 54%, occurred in propane, which is logical because of the diversion of butane to oil refinery usage. Nevertheless, butane sales increased 42% and sales of propane-butane mixtures increased 39%.

■ ■

P. G. & E. Wins Rehearing

The Pacific Gas & Electric Co., San Francisco, Calif., has been granted a rehearing by the Ninth U. S. Circuit Court of Appeals on its petition for a review of an order by the Securities and Exchange Commission holding it technically a subsidiary of North American Co. and subject to the Public Utilities Act.

United Gas Pipe Line Company

Tells Its Story to Industrial America

"DEPENDABLE Natural Gas Service Doesn't Just Happen!" is the established slogan which United Gas Pipe Line Co., Shreveport, La., carries in its advertisements to its many customers in Texas, Louisiana, Mississippi, Alabama and Florida. At present the company is conducting an extensive program to encourage the location of industries in the territory it serves, in addition to its current institutional advertising program.

This territorial advertising, which was launched in the summer of 1939, now consists of advertisements at four-week intervals in *Time*, *Business Week*, *United States News* and *Wall Street Journal* and every other month in *Manufacturers Record*. Reprints of each advertisement are mailed to approximately 4500 business leaders, chambers of commerce, industrialists and others throughout the company's territory. Personal contacts are made by company representatives with heads of industrial organizations, and data and information essential to industry in connection with plant location problems are also compiled.

Because the company's operations cover a wide belt bordering the Gulf of Mexico and extending several hundred miles inland, the term "Gulf South" has been coined as descriptive of this area. Thus, the industrial development activity has come to be known as the "Gulf South Program".

The "Gulf South" series advertisements tell industrial leaders throughout the nation of that territory's potentialities as a field for expansion for both war and peacetime production. Basic industrial advantages such as abundance of natural gas, good transportation, reliable, intelligent labor, good schools, plentiful land and ideal living and working conditions in a mild year 'round climate are pointed out. The advertisement, "They Found More Than They Knew," a recent one in this series, was given special recognition by the advertising journal, *Tide*.

The institutional advertising program includes insertion of 60-in. advertisements each month in weekly and daily newspapers in the company's service area. This program is designed to acquaint readers with facts about the industry as they relate to the public and national welfare.

In keeping with the wartime effort the theme of this year's institutional program is emphasized through the slogan "Roll up your sleeves for the Gulf South—America's fast-growing industrial area for war and peace-time production." (See cut.) This series tells of the increasing importance of "Dependable Natural Gas" and how United is helping to meet the demands of war.

The *United Gas Log*, United's company magazine, carried an article in the February, 1942, issue titled "Our Company's Advertising Program," by W. N. Ford, in which the author stated:

"Advertising in wartime has taken on a new responsibility; that of making our people conscious of the performance of industry and business in this great all-out war effort. Our company's 1942 advertising program has been prepared with these basic thoughts in mind and with a full realization of the public education essential not only to the continued success of business, but also to the future welfare of our country."

■ ■

THEY FOUND MORE THAN THEY KNEW

• The Spanish explorers saw in what is now the Gulf South only part of the wealth of the vast new empire they found. Undiscovered—and produced centuries later—only at great cost in money and effort—was such a reservoir of energy as would eventually help make America industrially supreme!

Today that energy—Natural Gas—is available to Gulf South industries in abundance at a thousand and one plant sites. Also available are vast natural resources and basic raw materials—a diversity of agricultural crops and millions of acres of pine and hardwood timber.

Add to these Gulf South industrial advantages white, reliable, intelligent labor—plentiful land—excellent schools—convenient transport by land, air and sea to fast-growing local, regional and Pan-American markets—year-round mild climate.

Join the march of industry to the Gulf South. This Company's organization and facilities are available to industries interested in Gulf South opportunities.

Advise us of your requirements . . . without obligation we shall be glad to make a confidential survey for you.

This picture shows the simplicity of Natural Gas application to low temperature Fuller's earth and other clay drying kilns in the Gulf South.

THE GULF SOUTH INVITES INDUSTRY

For information on GULF SOUTH opportunities write to MANAGER OF INDUSTRIAL DEVELOPMENT

UNITED GAS PIPE LINE COMPANY

FOR TEXAS, with offices at Houston, Beaumont, Dallas, Fort Worth, Kilgore, Longview, Port Arthur and Wichita Falls; FOR LOUISIANA, with offices at Shreveport, Lake Charles, Monroe and Morgan City; FOR MISSISSIPPI, ALABAMA and FLORIDA, also Mobile and Jackson, Mississippi.

This advertisement, which appeared in a recent issue of TIME, is typical of United Gas Pipe Line Company's national advertising, which tells the "Gulf South" story to industry.

ROLL UP YOUR SLEEVES

For the Gulf South

America's Fast-Growing Industrial Area—For War and Peacetime Production

The Gulf South—America's fast-growing industrial area—is doing its full share to make our national future secure, and to safeguard America's freedom. The Gulf South area has been favored with an important part in our country's war program—a part that emphasizes the value of its immense and rich resources—its fine citizenship—and brings them into full play.

Natural Gas is one of these resources. In factories, mills, military centers, and homes throughout this region, Natural Gas is playing an increasingly important role. Our organization always has been vitally aware of its responsibilities. And during this war crisis, it is especially mindful of the importance of helping to meet our country's war requirements fully and adequately.

There is a job to do . . . and the Gulf South will do it . . . swiftly and well!

UNITED GAS PIPE LINE COMPANY

DEPENDABLE NATURAL GAS SERVICE DOESN'T JUST HAPPEN

The "Roll Up Your Sleeves" theme of United Gas Pipe Line Company's institutional campaign is presented in this advertisement which appeared recently throughout the company's service area.

Domestic Range Research Changed to Include Cooking

R. L. Fletcher, chairman, Committee on Domestic Gas Research of the American Gas Association, has announced that the name of Project No. 1, "Research in Domestic Gas Ranges," has been changed to "Research in Domestic Gas Cooking." This change has been made in order to more completely describe the research work being done under this project, which work includes a number of cooking investigations not directly connected with ranges as such.

The project, "Research in Domestic Gas Cooking," is the key project of the extensive domestic gas research program that has been authorized by the Executive Board of the Association.

A number of valuable technical bulletins have been released as a result of these projects which are being conducted in the Association's Laboratories in Cleveland. Copies of Domestic Gas Research Bulletins can be obtained from A. G. A. Headquarters.

■ ■

Senate Would Spend Four Million on Helium Plants

Expenditure of $4,000,000 for construction and equipment of helium plants has been recommended by the Senate appropriations committee. Construction and operation probably would be assigned to the Bureau of Mines which is now engaged in producing helium gas for lighter-than-air craft in Texas.

■ ■

Shell Has New Gas-Oil Field

The Shell Oil Co. has opened up a new gas and oil field in northwestern Kern county, Calif. The completion of a well showed gas output of potential 3,500,000 cu. ft. per day, with a flow of 900 bbls. of oil per day from a depth of 2340 ft.

World's Largest Oil Pipe Line Will Be Constructed Soon

ACTING within 48 hours of clearance for necessary steel, an order for 550 miles of 24-in. steel tubing to be used in the construction of the largest oil-carrying pipe line ever built anywhere in the world has been placed, according to Petroleum Coordinator for War Harold L. Ickes.

The order was placed with the National Tube Co. of Pittsburgh, Pa., with deliveries scheduled as follows:

July 140 miles; August, 170 miles; September, 130 miles; October, 110 miles.

This development followed closely the reaching of an agreement with the Reconstruction Finance Corporation to finance the new line, which will deliver 300,000 barrels of East Texas crude oil each day into southern Illinois for trans-shipment to the East Coast shortage area.

Because of the rapid progress that has been made since the War Production Board approved the project on recommendation of the Office of Petroleum Coordinator, Deputy Coordinator Ralph K. Davies said that every indication now pointed to a start on actual construction of the line within the next 30 days, and that the line is to be built and operated as a common carrier by the petroleum industry. The line, he said, will be made available to any shipper of crude oil, under rules and regulations contained in tariffs to be published and filed with the Interstate Commerce Commission.

The pipe line managing committee, headed by W. Alton Jones, will release construction specifications to pipe line contractors and call for bids. It is estimated that the job will cost between $35.000,000 and $40,000,000.

■ ■

United Gas Corp. Sets New Gas Sales Record in 1941

Increased demands of industrial, government, and municipal customers enabled United Gas Corp., Houston, Texas, and subsidiaries, which serve the Gulf South area, to establish a sales record in 1941 of 279,352,000 cu. ft. of natural gas. This compared with sales of 248,517,000 cu. ft. in 1940, the corporation's annual report revealed. The sales rise was not alone attributable to service on industries engaged in war production, but also by increased consumption of gas by electric generating stations serving such industries and by attendant activity in other industries, the report said.

■ ■

United Gas Pipe Line Asks To Relocate Rhodessa Line

United Gas Pipe Line Co., Shreveport, La., has asked the Federal Power Commission for permission to remove and relocate certain natural gas pipe line facilities in the Rhodessa area of northern Louisiana. The application states that there is no longer need for one of three loop lines used to transport gas 20.31 miles from the Rhodessa field to the company's transmission line. The move would make available 4.3 miles of 18-in. line pipe and 16 miles of 12-in. line.

■ ■

Test Drills in East Texas

Arkansas-Louisiana Gas Co., Shreveport, La., will soon start on the first of two test drills planned on a 1400-acre tract in the Wascom field in southeast Harrison county, Texas, and Lone Star Gas Co., Dallas, Texas, is spudding a new Trinity series test in Henderson county, Texas.

Progress on the Pipe Line

Building

Manufacturers Gas Light Co., subsidiary of Columbia Gas and Electric Co., Wilmington, Del.: Construction of 30 miles of 16-in. natural gas line is now under way for Manufacturers Gas in western Pennsylvania. The contractors work is being supervised by T. E. Davis, superintendent of Williams Brothers Corp.

Arkansas-Louisiana Gas Co., Shreveport, La.: Within 60 days it is expected that the natural gas line will be completed which Arkansas-Louisiana is laying between Magnolia, Lake Catherine and Bauxite, Ark. All of the 33 miles of 12-in. pipe called for by the contract has been laid. In addition, 30 miles of 18-in. has been laid. The remainder of the project consists of 30 miles of 18-in. required for finishing a total of 123 miles of line. Construction is being handled by Midwestern Engineering & Construction Co.

Completed

Arkansas-Louisiana Gas Co., Shreveport, La.: The gas line from Texarkana to New Boston, Texas has been completed. In construction for two months, the line answered desperate pleas from citizens in the New Boston area, where two mammoth war plants have increased demand enormously in the last few months. The line is an extension of the one serving the Lone Star and Red River war plants.

Rehearing Denied

Wisconsin Southern Gas Co., Burlington, Wis.: Rehearing was refused by the Wisconsin Public Service Commission on its recent order authorizing Wisconsin Southern to construct 10 miles of pipe line from Lake Geneva to the Wisconsin-Illinois line where it will connect with facilities of the Natural Gas Pipeline Co. of America, Chicago, Ill. The Wisconsin Railroad Association and railroad employee representatives asked rehearing on ground that the commission had trespassed upon jurisdiction of the Federal Power Commission. The company now supplies manufactured gas in Burlington, Lake Geneva, Delavan, Elkhorn, Williams Bay, Fontana, Walworth, and nearby rural sections of Wisconsin.

Texas Regulates Gas Used in Recycling

STRINGENT control and regulation of the use of natural gas in the operations of recycling plants in Texas has been ordered by the State Railroad Commission following a meeting in Austin, attended by operators. The order became effective July 1.

Under the ruling no recycling plant shall be permitted to vent any gas obtained from a statutory well. The commission indicated, however, that reasonable compliance with the order will permit the venting of a volume of flash vapor not in excess of 2% of the volume of gas taken into the plant.

Regulations imposed under the order included requirement for separate metering of all gas taken into a plant as follows:

1. All gas taken into a plant from statutory gas wells.
2. All casinghead gas taken into a plant.
3. All gas used for plant fuel.
4. All gas injected into each formation.
5. All gas taken by pipe lines or other domestic or commercial users.
6. All gas vented directly or indirectly to the air. Gas used for lifting water by jetting, or used in turbines and subsequently vented into the air or burned in flare.

No gas shall be used for plant operation which is not burned in boilers, heaters or internal combustion engines in a reasonably efficient manner; and no raw gas or residue gas shall be used for plant fuel if any flash vapors are being vented or flared.

No recycling plant shall be operated without certificate of compliance, which shall continue in force for 12 months, and shall be renewed each 12 months, and shall be subject to revocation.

■ ■

Waco, Texas School System Keeps All-Gas Equipment

After a year's trial, the Waco (Texas) School Board has accepted gas heating equipment throughout the school system, which consists of 17 buildings. The equipment was installed a year ago by the Texas Cities Gas Co. The company engineers at that time figured that about $2000 a year could be saved with gas as compared with coal which had formerly been used. On May 1, a survey was completed which revealed that the school board had saved $2530.96.

■ ■

CIO Gets Bargaining Rights

The CIO Utility Workers Organizing Committee now has exclusive collective bargaining rights with the Pacific Gas & Electric Co., San Francisco, Calif., in its East Bay distribution and maintenance plants. Besides the CIO, this also affects the AFL Brotherhood of Electrical Workers and two independent unions of the company.

Compact Commission Issues Pamphlet

THE Interstate Oil Compact Commission has published a pamphet which summarizes its organization, purposes, and functions and tells the story of progress in oil and gas conservation during the last 17 years.

Prior to 1925 most of the oil-producing states had elementary statutes regulating the manner of drilling, casing and completing wells to prevent waste, but with the exception of Oklahoma they were not confronted with over-production problems. Most of the fields then discovered were comparatively shallow and not excessively productive. In the years 1925-1931, there were unprecedented discoveries of vast productive fields. Among these, the Yates, Winkler, Van and East Texas pools in Texas, the Hobbs field in New Mexico, the Santa Fe and Kettleman Hills fields in California, and the Seminole and Oklahoma City fields in Oklahoma created new problems.

It became apparent that the problem of over-production was an interstate problem which could not be solved by an individual state. The Governors of oil-producing states held conferences, which resulted in the creation of an Oil Status Advisory Committee. This committee was organized at a meeting in Fort Worth, Texas, February 28, 1931.

This Oil States Advisory Committee functioned until a code was drawn by the National Industrial Recovery Act (NRA) and the act was declared unconstitutional by the Supreme Court of the United States.

No sooner had it been declared unconstitutional than Governors' conferences were again called to consider an interstate agreement to coordinate state efforts. As a result of such conferences the Interstate Compact to Conserve Oil and Gas was drafted and agreed upon in Dallas, Texas, on February 16, 1935. The legislatures of six states, Oklahoma, Kansas, Texas, New Mexico, Colorado and Illinois, promptly ratified this compact. It was approved by Congress on August 27, 1935. Michigan joined in the compact in 1939. Arkansas, Louisiana, New York and Pennsylvania joined in 1941. No membership has withdrawn, so the membership now consists of 11 states. Its members produce about 80% of the current oil production in the United States. Any state may join by executing a counterpart of the agreement and filing the same with the Department of State of the United States.

Copies of the pamphlet, titled "The Interstate Compact to Conserve Oil and Gas," which contains various committee reports and transcripts, enabling statutes and conservation laws of the various states, and other additional information will be furnished upon request by addressing Charles L. Orr, secretary, Interstate Oil Compact Commission, State Capitol Bldg., Oklahoma City, Okla.

The "Interstate Oil Compact Quarterly Bulletin," also published by the Interstate Oil Compact Commission, was issued in April, 1942. This bulletin contains a report of the Spring Quarterly Meeting, an article by John E. Howell titled "A Practical Example in Unitization and Repressuring of an Oil Field," and a statistical appendix compiled by E. G. Dahlgren, technical secretary of the Research and Coordinating Committee on OPC Recommended Production Rates Compared to Actual Production of Oil in 20 states, including U. S. Bureau of Mines data on daily averages and thousands of barrels.

A quarterly meeting of the Interstate Oil Compact Commission was held at the Lafayette Hotel, Lexington, Ky., June 19-20. Committee meetings and informal conferences took place on Friday and the general session began Saturday morning. The program included a study of pressure maintenance and secondary recovery methods in the production of oil. A survey of these and other conservation practices was made. The meeting was called earlier in June by Gov. Leon Phillips of Oklahoma, chairman of the commission.

East Ohio Expands Gas Liquefaction Plant

THE storage capacity of East Ohio Gas Co.'s (Cleveland, Ohio) liquid gas plant will be immediately expanded by 75%, W. G. Hagan, vice president in charge of operations stated late in June. Expansion is being made in anticipation of record-breaking demands next winter from domestic consumers and war industries, explained Mr. Hagan.

East Ohio's liquid gas plant, first structure of its kind in the world (*GAS*, Dec., 1940, p. 24, and June, 1941, p. 20), precluded serious fuel shortages in the sub-zero weather last winter.

The recent decision to augment storage facilities was made as a result of the war-time inability of East Ohio's affiliate and chief supplier, The Hope Natural Gas Co., Clarksburg, W. Va. (which provides 77% of East Ohio's supply), to carry on this year its plans for a $25,000,000 pipe line from West Virginia to the Texas-Louisiana gas pools. (*GAS*, Aug., 1941, p. 24; Dec., 1941, p. 37; and Jan., 1942, p. 32.)

The new liquefaction project, whose cost has not yet been fully determined, will provide additional storage space for about 100,00,000 cu. ft. of natural gas, which, in liquid form, will be contained in two oblate spheroids, one inside the other. The outer tank will be 76 ft. in diameter by 43 ft. The space between the tanks will be insulated to maintain the liquid at minus 250° F.

The $1,500,000 liquid gas plant, built in 1940, now stores 150,000,000 cu. ft. of gas in one six-hundredth of that space. A unique "gas refrigerating" process converts fuel in its natural, gaseous form to a liquid by reducing its temperature to minus 250° F.

Seven miles of 20 and 22-in. pipe line will be laid to insure an additional volume of gas for times of peak demand in an area with a heavy concentration of gas-heated homes. The company will also construct a 22-mile, 8-in. line from gas pools in Tuscarawas and Stark counties to a central control station near North Canton, where the main transmission lines converge.

■ ■

Montana-Dakota Utilities to Issue First Mortgage Bonds

The Federal Power Commission has authorized the Montana-Dakota Utilities Co. to issue an aggregate of $1,000,000 of first mortgage bonds. Part of the proceeds will become available at once to reimburse the company's treasury for expenditures for property additions against which securities have not heretofore been issued and the balance will remain with the trustee under the indenture of mortgage to be withdrawn against bondable net additions after March 31, 1942. Simultaneously with the issuance of the bonds, the company will repay the $510,000 of its 2½% purchase money notes outstanding March 31, 1942. Estimated expenditures for property additions during 1942 will be approximately $350,000, including cost of construction of natural gas field lines. The Montana-Dakota Utilities Co. is engaged in the natural gas business in Montana, North Dakota, South Dakota and Wyoming.

■ ■

Coast Counties Asks Rate Cut

The Coast Counties Gas & Electric Co., Santa Cruz, Calif., has applied to the Railroad Commission for permission to reduce natural gas rates in its Valley and Contra Costa counties divisions. The reduction is due to the decrease in heat content of natural gas because of changing from Kettleman Hills to Rio Vista and Vernalis fields.

LeMay Leads New Haven Defense Training Project

ROBERT C. MeMAY, industrial gas engineer, The Connecticut Light & Power Co., Watherbury, Conn., has conducted an industrial heating course known as the New Haven Defense Training Project. Mr. LeMay is chairman of the American Gas Association Industrial and Commercial Gas Section's Metal Treating and Metal Committee.

The course was conducted under the Engineering, Science, and Management Defense Training Act of Congress, and was directed from the defense training office at 15 Prospect Street, New Haven, Conn. It started February 18 in Waterbury and was completed by July 1.

Twenty lectures were given by Mr. LeMay and his associates, among them being Herbert Etter, Eclipse Fuel Engineering Co.; A. V. Leudemann, Mears-Kane-Ofeldt, Inc.; Herman Gehnrich, Gehnrich & Gehnrich; Oliver Pritchard, The Brooklyn Union Gas Co.; T. F. Loughry, Surface Combustion Corp.; and D. C. Sanford, The Bristol Co. A total of 80 men were enrolled for the course, representing 27 New England manufacturing concerns.

■ ■

Natural Gas Pipeline Rates Being Investigated by FPC

The Federal Power Commission has announced its order directing that hearing be resumed on July 20, 1942, on investigations of the wholesale rates of Natural Gas Pipeline Co. of America, Chicago, Ill., and Texoma Natural Gas Co., also of Chicago, which were instituted on complaint of the Illinois Commerce Commission and on the commission's own motion. The action follows the Supreme Court decision upholding the commission's interim rate order of July 23, 1940, which reduced the pipe line company's wholesale rates $3,750,000 a year. (*GAS*, June, 1942, page 47.)

Hearing on the companies' rates started May 8, 1939, and continued from time to time until January 10, 1940, when the hearing was recessed and the case held open by the commission for further proceedings.

■ ■

California Companies Issue New Bi-Monthly Newspaper

The first issue of "Gas Newsweek," bimonthly magazine published by and for the employees of the Southern California Gas Co. and the Southern Counties Gas Co., Los Angeles, made its appearane May 12, 1942.

"Gas Newsweek" has been inaugurated to cover briefly, factually, and objectively such happenings in the nation, in the gas industry and in the two California companies as have a direct bearing on the lives of the companies' employees, according to the introductory note on the front cover. It is not meant to supplant "Gas News," the companies' long-established monthly magazine.

Editor of the new publication is Otto C. Mauthe, and associate editors are J. T. Van Rensselaer and H. E. Carter.

■ ■

Hetch Hetchy Another Year

With the concurrence of the Department of Justice and the Department of the Interior, the city of San Francisco, Calif., was granted the right to continue the sale of Hetch Hetchy power to the Pacific Gas & Electric Co. for an additional year. The city will receive $2,000,000 a year from the power company, to continue to July 1, 1943.

ASSOCIATIONS

Canadians Hold Montreal Meeting

THE 35th Annual Convention of the Canadian Gas Association was held at the Windsor Hotel in Montreal, June 4-5. Officers elected at the meeting included:

Frank D. Howell, division superintendent, Dominion Natural Gas Co., Brantford, Ont., president (succeeding W. J. Pead, Jr.); Alan H. Harris, Jr., manager, Gas Utility, Winnipeg (Man.) Electric Co., first vice president (succeeding Mr. Howell); W. C. Philpot, works superintendent, Consumers' Gas Co. of Toronto, Ont., second vice president (succeeding Mr. Harris); and G. W. Allen, gas survey engineer, Toronto, Ont., secretary-treasurer (re-elected).

Newly elected directors at the meeting included:

J. C. Dawson, Quebec City, Que.; O. B. Phillips, Ottawa, Ont.; G. W. Page, Montreal, Que.; Julian Garrett, Edmonton, Alta.; K. L. Dawson, Halifax, N. S.; T. P. Pinchard, Hamilton, Ont.; John Keillor, Vancouver, B. C.; J. B. McNarry, Hamilton, Ont.; A. J. Strain, Toronto, Ont.; and W. J. Pead, Jr., Montreal, Que.

Principal speakers were:

Mr. Harris; Mr. Pinchard, vice president, United Gas & Fuel Co. of Hamilton (Ont.), Ltd.; John E. Bogan, sales promotion manager, domestic gas range division, Association of Gas Appliance and Equipment Manufacturers, New York, N. Y.; J. D. von Maur, engineer of distribution, Consumers' Gas Co. of Toronto (Ont.); H. P. Nagel, statistician and educational director, Dominion Natural Gas Co., Ltd., Buffalo, N. Y.; and George S. Jones, Jr., vice president, Servel, Inc., Evansville, Ind.

In addition to the regular sessions, the usual "Question Box Hour" was held, during which many questions were introduced by members of the association for discussion. The annual dinner was also held on an abbreviated war-time basis. The next convention of the association is scheduled to be held in Niagara Falls, Ont., June 3-4, 1943.

CALENDAR

September

Mid-West Gas Association Annual Gas School and Conference—This meeting recently cancelled. See story, page 32.

Pacific Coast Gas Association Annual Convention — San Francisco, Calif., September 28. This date tentative.

24th Annual Convention, American Gas Association—The A.G.A. Executive Board cancelled the annual convention at its meeting in New Orleans, May 4. However, a brief business meeting will be held at central mid-western location.

October

National Safety Congress and Exposition—Chicago, Ill., October 5-9.

Independent Petroleum Association of America, 13th Annual Meeting—Wichita, Kan., October 13-15.

November

American Petroleum Institute, 23rd Annual Meeting — Stevens Hotel, Chicago, Ill., November 9-13.

Mid-Southwestern Gas Association Meeting—Dates not definite.

Petroleum Electric Ass'n Names 1942-43 Committees

H. C. Gear of Lone Star Gas Co., Dallas, Texas, and chairman, Cathodic Section, Petroleum Industry Electrical Association, has announced the formation of his committees for the year 1942-1943.

Officers, in addition to Mr. Gear, are as follows: F. J. McEdhatton, Panhandle Eastern Pipe Line Co., Kansas City, Mo., vice chairman; E. A. Koenig, Magnolia Pipeline Co., Dallas, Texas, secretary; L. F. Scherer, The Texas Pipe Line Co., Houston, councilman, and G. R. Olson, United Gas Pipe Line Co., Shreveport, La., councilman.

R. A. Brannon, Humble Pipe Line Co., Houston, Texas, is chairman, Technological Committee; W. E. Huddleston, Cities Service Gas Co., Bartlesville, Okla., is chairman Program Committee; W. T. Pyott, Great Lakes Pipe Line Co., Kansas City, Mo., is chairman, Resolutions, and E. A. Koenig, Magnolia Pipeline Co., Dallas, Texas, is chairman, Intercompany Procedure. The next annual convention of the association is scheduled to be held in Houston, Texas, in May, 1943.

■ ■

Honoria Moomah Appointed Sec'y, Natural Gas Section

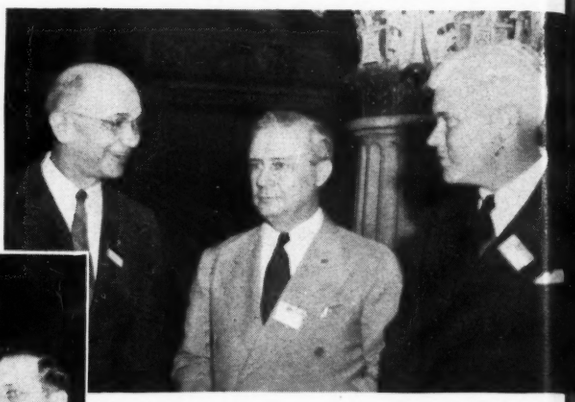
Miss Honoria B. Moomaw has been appointed acting secretary of the Natural Gas Section of the American Gas Association, effective June 15. On that date E. Holley Poe, secretary of the section, resigned to become Director of the Natural Gas and Natural Gasoline Division of the Office of Petroleum Coordinator for War (see page 12).

Miss Moomaw is a graduate of Randolph-Macon Woman's College, Lynchburg, Va., majoring in English. Her business experience includes retail and wholesale selling and sales promotion; several years as a medical secretary, and since 1939 secretary to Mr. Poe.

GAS CAMERA

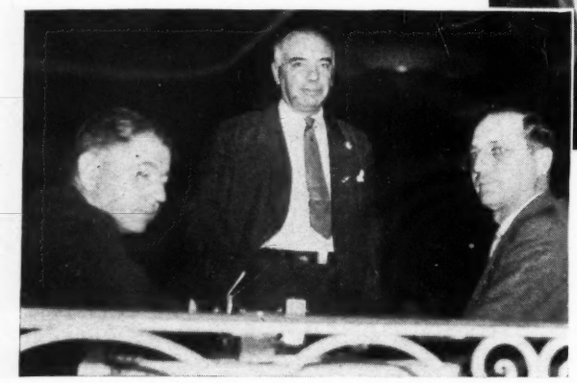
(GAS camera catches delegates to American Gas Association's Natural Gas and Distribution Meetings in New Orleans, Louisiana, Last May.)

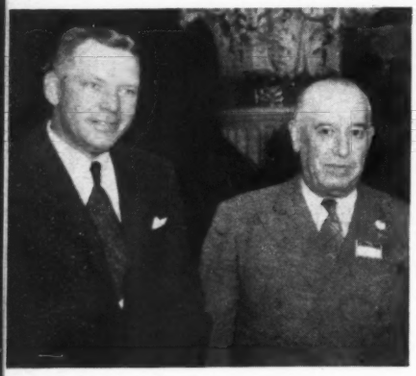
Paul C. Kreuch, Pittsburgh Equitable Meter Co., Chicago, Ill.; **Carl J. Minnig,** Continental Carbon Co., New York, N. Y.; **Mrs. A. E. Higgins, A. J. Kerr,** Pittsburgh Equitable Meter Co., Tulsa, Okla.; **C. C. Abbott, A. E. Higgins,** Pittsburgh Equitable Meter Co., Pittsburgh.



Floyd Gaunt, Reynolds Gas Regulator Co., Anderson, Ind.; **Wesley F. Wright,** Dallas (Texas) Gas Co.; **Warren J. Collins,** Lone Star Gas Co., Dallas

Ralph E. Haun, Southern California Gas Co., Lynwood, Calif.; **B. M. Laulhere,** Southern California Gas Co., Los Angeles, Calif.





Don E. Herringshaw, Consumers Power Co., Jackson, Mich.; **H. C. Price,** H. C. Price Co., Bartlesville, Okla.; **G. J. Neuner,** Panhandle Eastern Pipe Line Co., Kansas City, Mo.

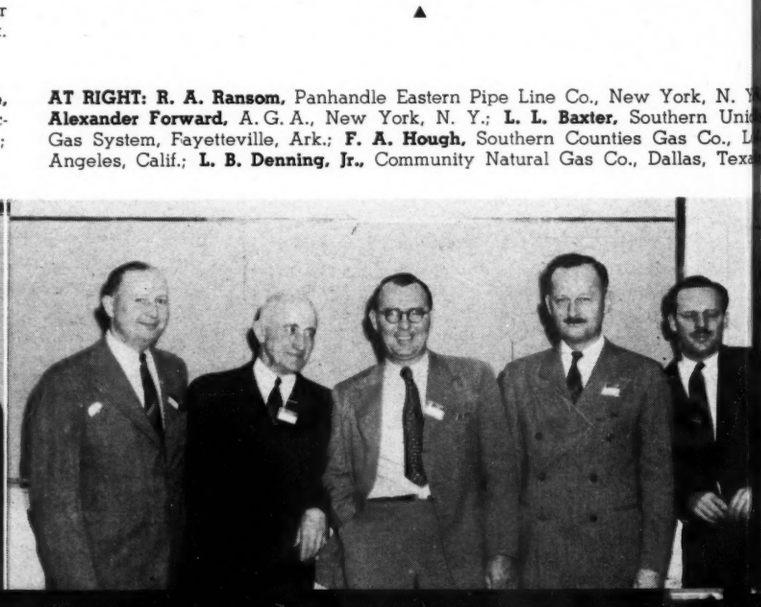
Jack J. Delaney, Reliance Regulator Corp., Alhambra, Calif.; **B. H. Elliott,** Birmingham Gas Co., Birmingham, Ala.; **Leigh H. Whitelaw,** Jones & Laughlin Steel Corp., Pittsburgh, Pa.; **M. L. Fort,** Pacific Lighting Corp., Los Angeles, Calif.

George P. Williams, Community Natural Gas Co., Wichita Falls, Texas; H. D. **Portwood,** Community Natural Gas Co., Dallas, Texas; **F. L. Carmichall,** Lone Star Gas Co., Fort Worth, Texas; **M. L. Bird,** Community Natural Gas Co., Abilene, Tex.

▲

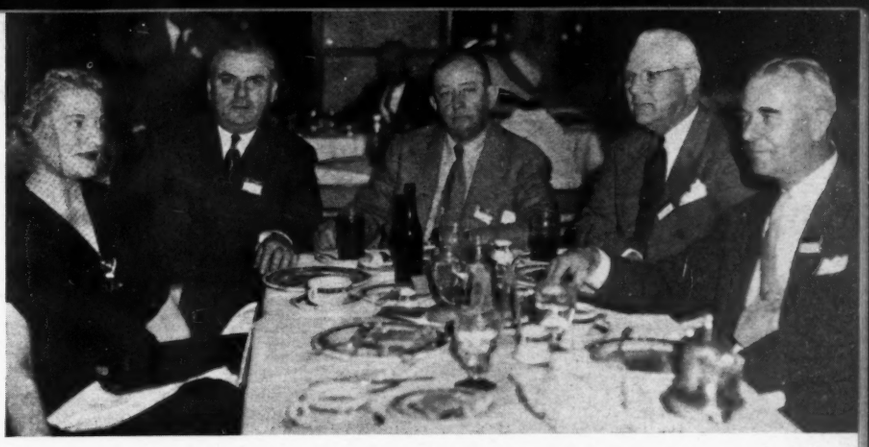
AT LEFT: W. T. Collins, Ohio Fuel Gas Co., Columbus, Ohio; **H. R. Peirce,** Sprague Meter Co., Davenport, Iowa; **W. J. Wuestenfeld,** Iowa-Illinois Gas & Electric Co., Rock Island, Ill.; **F. L. Fairchild,** Sprague Meter Co., Bridgeport, Conn.; **Stephen D. Day,** The Barrett Co., Inc., Houston, Texas.

AT RIGHT: R. A. Ransom, Panhandle Eastern Pipe Line Co., New York, N. Y.; **Alexander Forward,** A. G. A., New York, N. Y.; **L. L. Baxter,** Southern Union Gas System, Fayetteville, Ark.; **F. A. Hough,** Southern Counties Gas Co., Los Angeles, Calif.; **L. B. Denning, Jr.,** Community Natural Gas Co., Dallas, Texas



N CONVENTION

(For more photographs of gas industry leaders on convention at New Orleans, turn to June GAS, pages 32 and 33.)



Mrs. Dan S. Keenan and **Dan S. Keenan,** Carnegie Natural Gas Co., Pittsburgh, Pa.; **S. J. Brendel,** Samuel J. Brendel Oil Co., Pittsburgh, Pa.; **Bert Sutherland,** Chaplin-Fulton Mfg. Co., Pittsburgh, Pa.; **Virgil F. Bowyer,** Office of Petroleum Coordinator for War, Washington.

Alfred Hurlburt, Republic Natural Gas Co., Dallas, Texas; **C. C. Clover,** Westcott & Greis, Tulsa, Okla.; **John C. Diehl,** American Meter Co., Erie, Pa.

George M. Kirkpatrick, Blaw-Knox Co., Pittsburgh, Pa.; **Eugene D. Milener,** American Gas Association, New York, N. Y.; **E. A. Weaver,** Surface Combustion Corp., Toledo, Ohio.

Harold Gaidry, New Orleans Public Service Co., New Orleans, La.; **Deming Bronson,** General Paint Corp., Cleveland, Ohio.

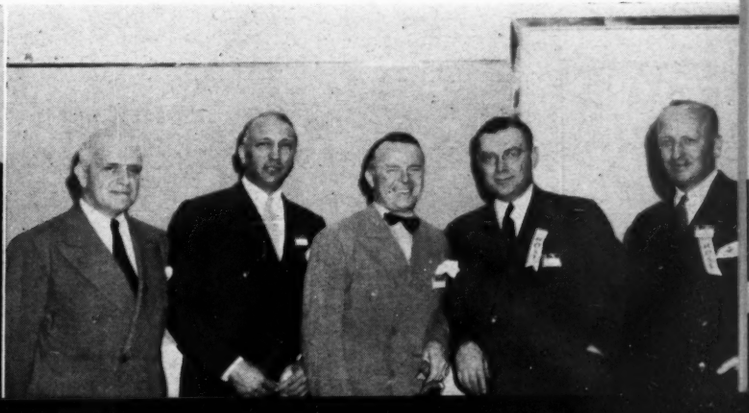
Guy C. Garrison, Sharples Chemicals, Inc., Chicago, Ill.; **O. B. Ewing,** Youngstown, Sheet & Tube Co., Youngstown, Ohio; **C. L. Nairne,** New Orleans Public Service Co., New Orleans, La.; **W. H. Ligon,** Atlanta Gas Light Co., Atlanta, Ga.

A. Gordon King, American Gas Association, New York, N. Y.; **George F. Briggmann,** Carbide & Carbon Chemicals Corp., New York, N. Y.; **H. W. Nicolson,** Public Service Electric & Gas Co., Newark, N. J.; **James P. Dresen,** Public Service Co. of Colorado, Denver, Colo.

▲

AT LEFT: J. D. Cummings, Crutcher, Rolfs, Cummings, Houston, Texas; **Joe W. Brown,** Lone Star Gas Co., Dallas, Texas; **George B. McComb,** The Barrett Co., New York; **O. A. Kinzer,** Dallas (Texas) Gas Co.; **H. P. Boncher,** Dresser Mfg. Co., Bradford, Pa.; **J. E. B. Gibbons,** Wailes Dove-Hermiston Corp., Westfield, N. J.

AT RIGHT: Louis Ruthenburg, Servel, Inc., Evansville, Ind.; **Frank C. Smith,** Houston Natural Gas Co., Houston, Texas; **George S. Jones,** Servel, Inc., Evansville, Ind.; **E. Holley Poe,** American Gas Association, New York, N. Y.; **Leigh H. Whitelaw,** Jones & Laughlin Steel Corp., Pittsburgh, Pa.



P.C.G.A. Section Chairmen Appointed

SECTION chairmen for the Pacific Coast Gas Association for 1943 were announced at the recent accounting, sales, and technical conferences held in Los Angeles. P. W. Walters, Southern California Gas Co., will be general chairman of the Accounting Section; R. J. Phillips, San Diego Gas & Electric Co., will be general chairman of the Sales and Advertising Section; and F. F. Doyle, Pacific Gas & Electric Co., will be general chairman of the Technical Section, according to Clifford Johnstone, managing director of the Association.

R. S. Fuller, engineer of construction, Pacific Gas & Electric Co., San Francisco, and president, Pacific Coast Gas Association, has appointed a Nominating Committee. Members are:

A. E. Holloway, San Diego (Calif.) Gas and Electric Co., chairman; W. G. Vincent, Pacific Gas and Electric Co., San Francisco, Calif.; A. F. Bridge, Southern Counties Gas Co., Los Angeles, Calif.; R. G. Logue, Ward Heater Co., Los Angeles, Calif.; E. J. Hinchey, James Graham Mfg. Co., Newark, Calif.

Mr. Johnstone has announced that attendance at recent P. C. G. A. conferences held in Los Angeles was approximately as follows: Technical, 200; Sales, 175; and Accounting, 50.

The Awards Committee has been appointed and is as follows:

Accounting Section: S. W. Binckley, Southern California Gas Co.; Charles Grunsky, Coast Counties Gas & Electric.

Sales and Advertising Section: O. R. Doerr, Pacific Gas & Electric Co.; H. W. Edmund, Coast Counties Gas & Electric.

Technical Section: C. P. de Jonge, San Diego Gas & Electric Co.; H. J. Smith, Pacific Gas & Electric Co.

Manufacturers Section: R. G. Logue, Ward Heater Co.; W. R. Smith, Continental Water Heater Co.

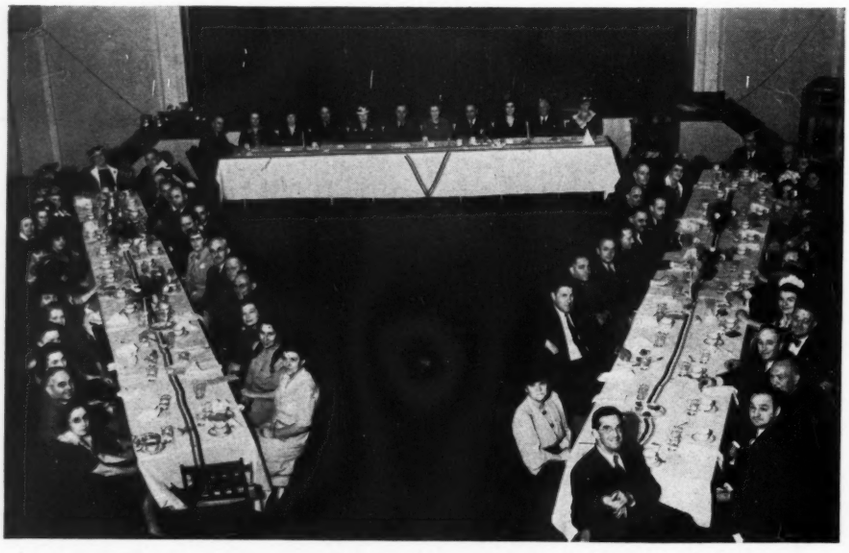
The change of plan on the part of the American Gas Association, which was to have held its annual meeting in San Francisco, Sept. 29 to Oct. 1, may make it advisable to change the date of the P. C. G. A. annual meeting, originally scheduled for September 28, according to Mr. Johnstone. While an earlier date may be chosen, the character of the meeting will remain unchanged. It will be a one-day business meeting, held primarily for the election of officers and for receiving reports of section and committee chairmen.

■ ■

N. E. G. A. Home Service Section Meets in Boston

Dr. Ernestine Becker, Johns Hopkins University food expert, was the principal speaker on nutrition at a recent meeting of the Home Service Section of the Sales Division of the New England Gas Association. Seventy attended the luncheon meeting, which was held in the auditorium of the Boston (Mass.) Consolidated Gas Co., with Miss Dorothy Lowney, chairman, presiding. R. J. Canniff, sales promotion manager, Servel, Inc., Evansville, Ind., and Mrs. Hazel Cheever, home service director, Arlington (Mass.) Gas Light Co., also addressed the meeting. (See cut below.)

Seated at the head table were: Clark Belden, secretary, New England Gas Association; Miss Susan Mack, home service director, Boston Consolidated Gas Co.; Miss Jane Roberts, home economist, Roberts & Mander Stove Co., Hatboro, Pa.; J. J. Quinn, sales manager, Boston Consolidated Gas Co.; Miss Becker; Roy E. Wright, Cambridge Gas Light Co.; Miss Lowney; Mr. Canniff; Miss Frances Cowing, assistant home service director, Servel, Inc.; Cyrus Barnes, assistant merchandising manager, New England Power Service Co.; and Mrs. Cheever.



Seventy members of the New England Gas Association attended the Home Service Section Sales Division meeting in Boston, Mass.

C. N. G. A. Installs New Officers for Coming Year

THE California Natural Gasoline Association has installed as its president for the coming year W. W. Robinson, Jr., of the Texas Co. R. W. Heath of Signal Oil & Gas Co. was chosen vice president.

In taking over his new duties, Mr. Robinson declared that in the change from peacetime to a war-time basis the natural gasoline industry has demonstrated that it is a war-time necessity.

Mr. Robinson stated that the natural gasoline industry is providing an uninterrupted flow of a petroleum commodity, portions of which are propane, butane and iso-butane, which are vitally important in 100-octane aviation gasoline and synthetic rubber.

Committee chairmen appointed by Mr. Robinson include: R. W. Heath, Signal Oil & Gas Co., advisory; R. S. Tulin, Shell Oil Co., finance and budget; M. W. Smith, Bankline Norwalk Co., auditing; Randal Maass, General Petroleum Corp., program; Ben C. Dumm, Allied Supply Co., entertainment; L. J. Bendlinger, Omita Gasoline Co., membership; R. D. Gibbs, Union Oil Co., gas report; D. E. Mcaddin, Union Oil Co., fall technical meeting, and J. B. Taylor, Signal Oil & Gas Co., technical, with R. R. Crippen of Texas Co. vice chairman of the technical committee.

■ ■

Mid-West Gas School to Be Dispensed With This Fall

R. B. Searing, secretary-treasurer, Mid-West Gas Association, has notified all members that the officers and executive council of the association have decided that the Gas School and Conference be dispensed with this fall. The next meeting was scheduled to be held September 8-10 in Ames, Iowa.

The space ordinarily used for exhibits and meter shop work at Iowa State College has been taken over by the U. S. Navy for special training of several hundred men, and the meeting, if it should be held, would be limited to lectures only. In view of the rubber situation, this type of meeting was not considered worth while.

Members are advised to contact H. K. Wrench, Minneapolis (Minn.) Gas Light Co., president of the association, or Mr. Searing, 302 Utilities Bldg., Sioux City, Iowa, secretary-treasurer, regarding any matters relative to the association.

■ ■

Wisconsin Association Holds Transportation Conference

The Wisconsin Utilities Association Transportation Section Conference was held June 26 at the Loraine hotel in Madison. The conference was substituted for the usual annual convention of the association.

General Grunert, commanding general, Headquarters Sixth Corps Area, assigned Major H. P. Whitcamp, QMC, automotive officer, and Joseph M. Sills, chief automotive advisor, Automotive Section, Office of the Assistant Chief of Staff, G-4, to address the conference. George Kuemmerlein, Jr., was chairman of the section.

■ ■

New Jersey Group Suspends

F. H. Darlington, president, New Jersey Gas Association, has announced that all activities of that body have been suspended for the duration of the war emergency. Membership is to remain unchanged without payment of dues and present officers and directors will continue in office. Activities will be resumed at the call of the president.

At the two-day sessions of the Southwestern Gas Measurement Course in Norman, Okla., April 21-23, public and industry leaders from all sections of the country were in attendance. Among those present were (left to right): Louis T. Krueger, Northern Utilities Co., Casper, Wyo.; H. B. Dismukes, United Gas Pipe Line Co., Bogalusa, La.; Haden Rawlinson, Dallas Gas Co., Dallas, Texas; Joseph A. Brandt, president of the University of Oklahoma, Norman, Okla.; Earl Kightlinger, Arkansas-Louisiana Gas Co., Shreveport, La.; Max K. Watson, Canadian River Gas Co., Amarillo, Texas.

Meter Men Present "Wrinkle Ideas"

DEMONSTRATIONS and explanations of "Operating and Maintenance Wrinkles for Meter Men" were featured at two afternoon classes of the Southwestern Gas Measurement Short Course, held at Norman, Okla., April 21-23.

The classes were led by P. H. Miller, Panhandle Eastern Pipe Line Co., Kansas City, Mo. Other members of the Wrinkles Committee are: P. M. Childers, Continental Oil Co., Ponca City, Okla.; G. E. Greiner, Phillips Petroleum Co., Bartlesville, Okla.; E. S. Doerr, Lone Star Gas Co., Dallas, Texas; and J. R. Bird, United Gas Pipe Line Co., Shreveport, La.

This was the fourth year that "wrinkles," devised by executives and employees of gas companies for improvement of their work in connection with gas measurement and regulation, have been exhibited or diagrammed at the Short Course.

Wrinkles ideas submitted this year included: portable meter run, J. L. Wimpkey, Amarillo, Texas; volume control of low pressure gathering systems, John P. Squier, Magnolia Petroleum Co., Dallas, Texas; method of setting lock-nut of gate valve for packing gland stop, J. L. Hamilton, Panhandle Eastern Pipe Line Co., Kansas City, Mo.; weather-proof padlock protector, J. L. Tipton, Panhandle Eastern Pipe Line Co., Kansas City, Mo.; filter and dehydrator for all types of regulator pilots and controls, and diaphragm tester for domestic meters, George Woolfall, Oklahoma Natural Gas Co., Tulsa, Okla.; fixed orifice for slow light testing with air, W. J. Henning, United Gas Corp., Houston, Texas; guard time clock, F. C. Walters, Panhandle Eastern Pipe Line Co., Kansas City, Mo.; gas sample drum for testing recording calorimeter, C. A. Serafino, United Gas Pipe Line Co., Shreveport, La.

Other wrinkles ideas were: idea for conserving rubber gaskets for orifice meters, Joe Tiner, Panhandle Eastern Pipe Line Co., Kansas City, Mo.; scratch block set for large meters, B. F. Worley, United Gas Corp., Houston, Texas; method of removing liquid from chamber of flow meter, Richard W. Weeks, Phillips Petroleum Co., Bartlesville, Okla.; jig for soldering penholder or orifice meter pen arms, Hubert Skinner, Magnolia Petroleum Co.; chart gauge for sight reading orifice meter charts, William V. Gilpin, Albuquerque (N. M.) Gas & Electric Co.; valve stem guide for use in grinding motor valve seats, M. G. Gibson, Phillips Petroleum Co., Bartlesville, Okla.; time leader control for pressure regulators, C. A. Hartle, Panhandle Eastern Pipe Line Co., Kansas City, Mo.; device for testing meter diaphragms, W. J. Hennings, United Gas Corp., Houston, Texas.

■ ■

Maryland Association Elects Officers at Recent Meeting

At the annual meeting of the Maryland Utilities Association, which was held at the Lord Baltimore Hotel, Baltimore, Md., recently, the following officers were elected:

Lewis Payne, Eastern Shore Public Service Co., Salisbury, president; C. B. Melton, Hagerstown Gas Co., vice president; Douglas C. Turnbull, Jr., Consolidated Gas, Electric Light & Power Co., Baltimore, treasurer; and J. Russell Hopkins, Eastern Shore Public Service Co., Salisbury, secretary.

■ ■

New Office at Wausau, Wis.

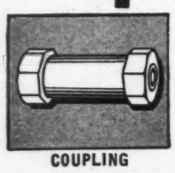
The Wisconsin Public Service Co. recently opened its new office building at Wausau. At the company's open house for the public, employees served as guides for persons interested in learning about utility office functions.

Three members of the Southwestern Gas Measurement Short Course "Wrinkles Committee" which displayed models of various devices at the meeting in Norman, Okla., April 21-23. They are (left to right): George Greiner, Phillips Petroleum Co., Bartlesville, Okla.; Pat H. Miller, Panhandle Eastern Pipe Line Co., Kansas City, Mo.; and John R. Bird, United Gas Pipe Line Co., Shreveport, La.

Maximum **DEFLECTION, RUBBER** *Confinement and* **STRENGTH** *plus* **FULL COUPLING DEPTH**

are the **BASIC VALUES**
you get when using—

NORMAC
COUPLINGS, SLEEVES AND FITTINGS . . . .


COUPLING

SERVICE "ELL"

SERVICE "TEE"

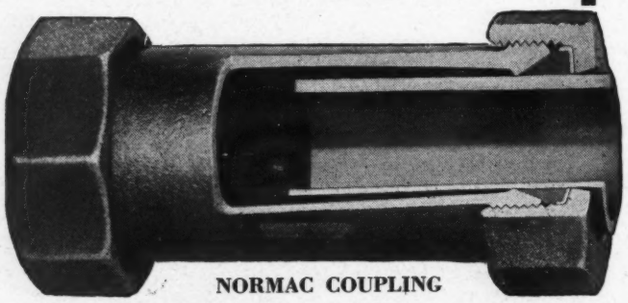
BRASS FITTINGS

THE CAREFUL DESIGN of "NORMAC" products offers the ultimate in deflection, ease of "stabbing," and complete confinement of the rubber.

So close are "Normac" rubbers confined at the gasket tip that possibility of flow is reduced to almost "nil."

"Normac" Couplings and Fittings are made of Air Furnace Malleable Iron and offer many advantages which have won for them permanent acceptance among gas companies, large and small, throughout the country.

Write for Catalog No. 40 detailing the "NORMAC" Line.


NORMAC COUPLING

NORTON-McMURRAY MANUFACTURING COMPANY
Manufacturers of the "NORMAC" Line of Gas Distribution Equipment
COMPRESSION-END METER BARS • • SLEEVES • • COMPRESSION-END COCKS
• BELL JOINT CLAMPS • • • COUPLINGS • • • SERVICE TEES and ELLS •
39 SOUTH LA SALLE STREET • CHICAGO, ILLINOIS

New Industrial Gas Load Expansion Helps St. Louis Offensive Drive

A NEW industrial gas load expansion is now taking place in St. Louis, Mo., as plants formerly busy with construction materials and equipment manufacturing for the Army are now being converted to make special armament and materials for waging the offensive war just ahead. Laclede Gas Light Co. has recently completed many new gas installations which were remodeled or expanded from other gas equipment less than two years ago.

The American Torpedo Corp., torpedo manufacturers, who took over a half-completed building designed as a tin can factory, is now using gas for many processes in the manufacturing of aerial, submarine and destroyer torpedos.

Midwest Pipe & Supply Co., manufacturers of industrial piping and tubing for all purposes, is using gas in converting the pipe mill to the manufacture of 1000-lb. bombs.

The Scullin Steel Co., supplied with natural gas by Mississippi River Fuel Corp., which has been turning out bombs for Britain for several months, is now converting for the production of armor plate and turrets for heavy tanks. Bomb production continues.

Wrought Iron Range Co., which formerly manufactured stoves, is now making 500-lb. aerial bombs. The plant is using the furnaces which baked vitreous enamel on stoves for annealing bomb casings.

■ ■

California Commission Rules on Surplus War Gas Service

Implementing and making uniform the application of Order L-31 of the War Production Board, the California Railroad Commission June 9 rendered a decision ordering the California gas corporations to strictly enforce their existing gas shtu-off rules except in so far as prohibited by a regulation by the National Government.

If a surplus gas customer has not available other sources of fuel supply, but is entitled by virtue of a regulation or order issued by the National Government to the continuance of uninterrupted gas service, the obligation of the utility to supply gas to such customer under its surplus gas rate schedules ceases upon the date the utility gives written notice that, except for the prohibition contained in such regulation or order of the National Government, it would on that date have shut off the customer's gas service because of an insufficient supply of surplus gas in accordance with the provisions of such gas tariffs on file with the Commission. The utility then shall not render gas service to such customer at surplus rates unless and until such customers shall first have provided other sources of standby fuel supply, or the consent of the Commission is obtained.

■ ■

State Regulatory Bodies Modify Meter Testing Rules

The California Railroad Commission June 9 entered an order extending the old age meter removal requirement from seven years to 10 years where conditions warrant. The extension is called a war emergency to terminate six months after an armistice.

The Maryland Commission issued June 18 its formal order, effective that date and in force for six months after the war emergency, providing for periodic testing of meters as follows:

Meters up to a rated capacity of 300 cu. ft. per hour.....	14 years
Meters of a rated capacity of 300 to 1500 cu. ft. per hour	10 years
Meters of a capacity greater than 1500 cu. ft. per hour....	7 years

The rules formerly in force were 10, 7 and 5 years respectively.

■ ■

Independent Oklahoma, Texas Refiners Will Construct $10,000,000 Plant

News sources state that eight independent refiners of Oklahoma and North Texas have formed the Associated Refineries, Inc., with M. Lloyd Freese, vice president of Bell Oil & Gas Co., as president, for the purpose of constructing and operating a $10,000,000 high-octane refinery near Duncan, in southern Oklahoma.

Plans for the project have been approved by the War Production Board and the Defense Plant Corporation has been given priorities to obtain materials for the plant that will produce 100-octane gasoline and other war materials.

■ ■

Refrigeration Men Useful to Army

The need for men experienced in operating and servicing refrigeration units is anticipated by the Army, according to an announcement sent out by Servel, Inc., in response to a request by Maj. R. W. Lewis from the Caribbean Engineer Division, dated May 19.

It is thought that capable and skilled men who have been employed by Servel or by Electrolux dealers in the past have probably been drafted into the Army and their names and draft board numbers are requested so that they may be contacted.

Emergency Requirements For Domestic Gas Ranges

PREPARED at the request of the War Production Board, American Emergency Standard Approval Requirements for Domestic Gas Ranges have been published by the American Gas Association Testing Laboratories, and distributed to interested manufacturers. Formulated for the purpose of reducing amounts of strategic materials used in range construction to a minimum, these streamlined standards will remain in effect for duration of the emergency. They cover the so-called "cooker" type range.

Major changes from the current range standards cover constructional features. A reduction of 2 gage sizes from the present required thickness of sheet metal parts is permitted. Other changes include elimination of utility drawers, top burner covers and one of the two oven racks formerly supplied. All applicable standards for safety, performance, and efficiency remain unaltered. In view of the differences in materials employed, certified models must bear the following permanently attached statement in addition to the Laboratories Approval Seal: "Approved under War Emergency Requirements."

■ ■

Federal Recommendation Does Not Replace State Law

Decision has been returned by a Texas District Court that a Federal recommendation does not supersede or replace a state law governing the drilling of oil or gas wells.

Petition was filed by Estelle Oil Corp. and XYZ Oil & Gas Co., defendants in an injunction suit in Austin in which the order of Harold L. Ickes, Petroleum Coordinator, prohibited abandonment of a well so long as production paid operating costs. The state had started the injunction action to compel abandonment on grounds that two wells had illegally been drilled.

The ruling was that when such wells had illegally been drilled, the order by the Federal agency was not binding.

■ ■

Kerotest Has New Extension At Pittsburgh, Pa., Plant

Kerotest Manufacturing Co., makers of brass and steel valves, has completed a three-story brick, steel and concrete extension of its present plant at Liberty avenue and 26th street, Pittsburgh, Pa., for a factory with office space, and has cleared ground for another one and two-story building in the next block. Total cost of the new improvements, including machinery and tools, is estimated at $1,250,000.

■ ■

Wisconsin Fuel & Light Co. To Build 50,000-ft. Holder

The Wisconsin Fuel & Light Co., Manitowoc, has been authorized to construct a 50,000 cu. ft. gas holder at a cost of $12,000. The new holder will enable the company to use its water gas set in addition to equipment now operated in the manufacture of gas.

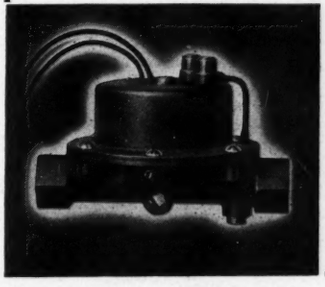
■ ■

H. C. Price Co. Expands

H. C. Price, president of H. C. Price Co., Bartlesville, Okla., has announced the expansion of his company which specializes in welding of pipe lines and oil field casings, to include general pipe line construction.

C-F
Weighted Illuminating
REGULATORS
Give Precise Control at Very LOW PRESSURES
The C-F regulator here illustrated may be used as reducing regulator, relief valve, or zero governor. It is designed for sensitive and sure operation governing the flow of low pressure gas to industrial burners, heat-treating furnaces, atmosphere controllers, inert gas generators, etc. Is an excellent district governor. Gives precise regulation of extremely low pressures at slight differential. Maximum inlet pressure 40 pounds, outlet range from atmosphere to 5 pounds. Sizes 1" to 2" screwed; 2" to 12" flanged. C-F Regulators cover all needs of pressure control as applied to gas, air, oil, water, steam. Write for more specific data.
THE CHAPLIN-FULTON MFG. CO.
38 PENN AVE.
PITTSBURGH, PA.

Snap-Acting Gas Valves
FOR QUIET, QUICK CONTROL



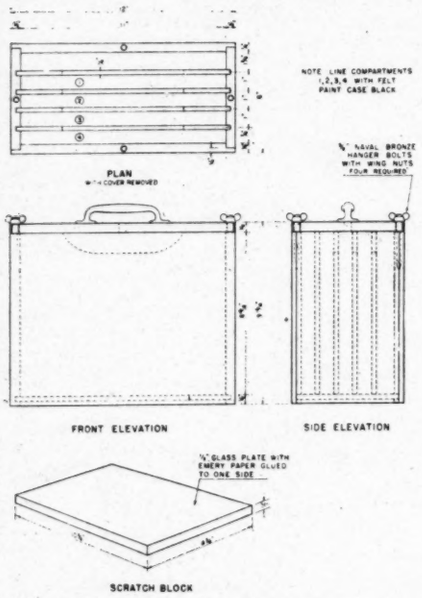
Klixon Electric Gas Valves are disc-operated. That's why they're quiet and quick. There's no humming, chattering or sticking. You get positive, close control at all times. Sizes range from 3/8" through 1 1/4" I.P.S. Comes with "puff bleed" (standard), or "constant bleed," at no extra cost. Manual opening with automatic recycling available at slight extra cost. Send for complete information.

KLIXON SPENCER THERMOSTAT CO.
807 Forrest Street, Attleboro, Mass.

NU-WAYS

Scratch Block Set For Large Meters

THE drawing illustrates scratch block set for grinding valve seats and valve covers on the following sizes and makes of positive displacement meters: Emco Nos. 2½, 3, 4, 4½, and 5; and Metric



80 B, 250 B, and 500 B. This set is designed primarily to meet the requirements of the measurement man who tests and repairs large meters in the field.

The set consists of four plate glass blocks and wooden case with five compartments. Four of the compartments are lined with felt to protect the scratch blocks against breakage and the extra compartment is provided for a reserve supply of emery paper.

The scratch blocks are cut from plate glass having a thickness of approximately one-half inch. Sharp edges are removed by beveling. It is recommended that the blocks be ground and polished in order to insure a true surface. Most large distributors of plate glass have facilities for cutting, beveling and polishing the plate glass blocks to specifications. Emery paper is mounted on one side of each block with shellac or glue and allowed to set for at least 24 hours. To eliminate wrinkles and air pockets, a piece of metal or glass having a reasonably true surface is placed on top of the emery paper and a number of weights added while the shellac or glue is drying. Standard size emery paper is slightly larger than the dimensions of the scratch blocks, and after the shellac or glue has set, the edges are trimmed off even with the block.

Two of the scratch blocks are usually equipped with No. 100 grit emery paper and two with No. 150 grit emery paper. The scratch blocks equipped with No. 150 grit emery paper are used for finish grinding and for valve seats and valve covers free of high spots and grooves. Where high spots or grooves exist, the scratch blocks equipped with No. 100 grit emery paper are first used and then finished off by grinding with the blocks equipped with the finer emery paper. A small amount of powdered pumice is usually dusted over the emery paper, which prevents it from becoming embedded with metal particles removed from the surface of the valve seats and valve covers.

This wrinkle was presented by B. F. Worley, United Gas Corp., Houston, Texas, to the Southwestern Gas Measurement Short Course at Norman, Okla., April 21-23, 1942.

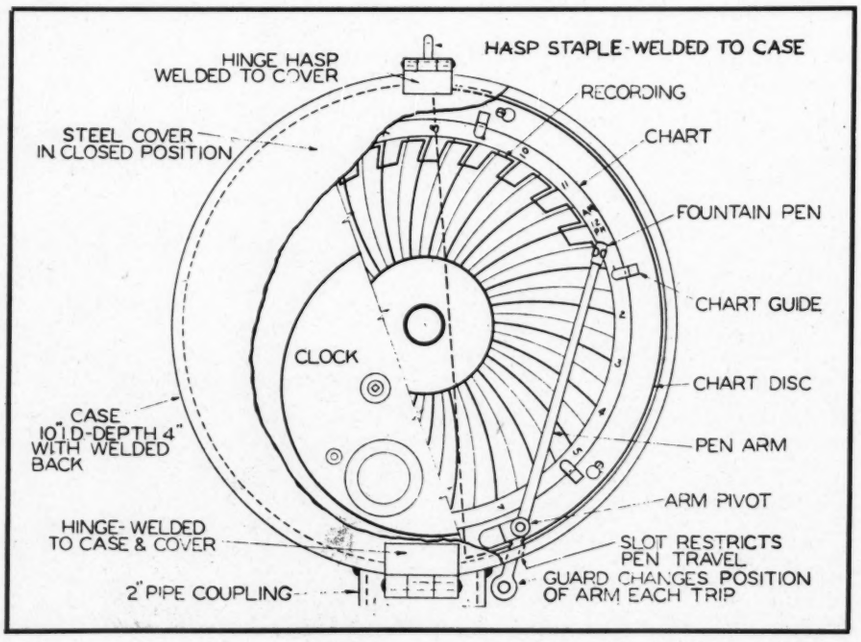
Main Plug

Illustrated above is one of the plugs which the Brooklyn (N. Y.) Union Gas Company has developed for use in plugging bomb-broken mains. The plug is made of light metal, rubber tubing and sheepskin. The tubing serves as a resilient material, between the metal frame and sheepskin, which presses the latter against the inside of the main. A short piece of rubber hose provides a universal joint between the plug and the pole to which it is attached. Shown in the picture are Defense Corps members Vito DeAngelis and Thomas Morra.

■ ■

Property Guard Time Clock

In order to operate a company-wide property guarding system it is necessary to have a record of each guard's trips over the property he is guarding. When the Panhandle Eastern Pipe Line Co. increased the number of property guards during the past few months, it was found necessary to assemble on short notice some sort of equipment for recording post observations, since there would have been considerable



delay in securing regulation punch clocks.

The drawing explains the construction of a quickly assembled and economical device which keeps a recording of the guard's trips to a selected post on the guarded property. Case is padlocked during operation and chart changed by authorized supervisors.

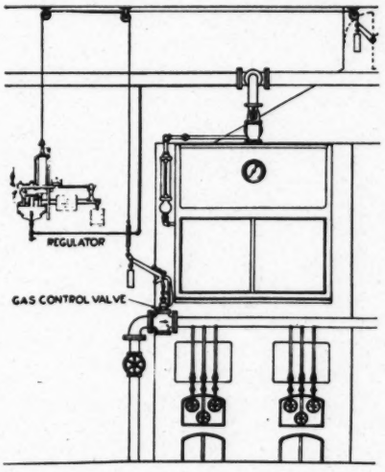
Presented to the Wrinkles class of the Southwestern Gas Measurement Short Course at Norman, Okla., April 21-23, 1942, by F. C. Walters, Panhandle Eastern Pipe Line Co., Kansas City, Mo.

■ ■

Gas Combustion Control

This sketch shows a practical method for automatic gas combustion control—a simplified means of automatically regulating valves, dampers, fans, and the like, for maintaining constant steam boiler pressure.

A general hook-up view is shown, including the sensitive regulator which virtually "weighs" the steam pressure

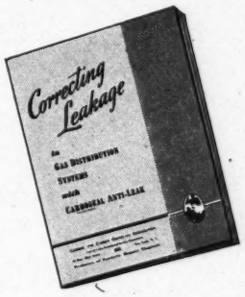


in the boiler and automatically adjusts the damper, shown in the sketch, and the gas control valve, this boiler being fired with natural gas. Note the "weighted lever valve" on the gas line, which is an ideal arrangement for the purpose, making operation certain in both directions. The weight closes the valve when the regulator plunger rises. As soon as the steam pressure drops, the regulator plunger moves downward and reopens the gas control valve and the damper.

This method is applicable to high or low pressure boilers and is particularly valuable on low pressure boilers in which the pressure is too low for assured self-manipulation. The regulator shown here is hydraulically operated and is not dependent upon steam pressure. Additional electric motor control by boiler pressure is eliminated.

You Save in 4 WAYS When You Use "CARBOSEAL" ANTI-LEAK

. . . for Long-Term Correction of Dry Bell-and-Spigot Joint Leakage



It will pay you to investigate

You too can do what others have already accomplished with "Carboseal" Anti-Leak treatment. Plan now to start using this accepted method for reducing your unaccounted-for-gas loss . . . This 20-page book tells more about "Carboseal" Anti-Leak treatment—how it can be applied by either the gravity or the hose method, how much it costs, and what results can be obtained. Write for a copy today, without obligation.

1. You Save Labor

The application of "Carboseal" Anti-Leak requires only a few filling connections on the main—four per mile is the average. Costly and time-consuming excavation and repaving are almost entirely eliminated. Only a small crew is required.

2. You Save Critical Materials

Quantities of steel and rubber—both required in the mechanical method of correcting bell-and-spigot joint leakage—are not needed in the "Carboseal" Anti-Leak chemical treatment.

3. You Save Gas

In typical applications in dry gas systems "Carboseal" Anti-Leak reduced unaccounted-for gas 60 per cent . . . 85 per cent . . . in many cases, 100 per cent.

4. You Save Money

The experience of 16 users who treated over 200 miles of main indicates that the average cost of "Carboseal" Anti-Leak treatment is about 50 cents per joint . . . a fraction of the cost of leakage correction by other means.

CARBIDE AND CARBON CHEMICALS CORPORATION

Unit of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York, N. Y.

The word "Carboseal" is a registered trade-mark of Carbide and Carbon Chemicals Corporation.

PRODUCERS OF SYNTHETIC ORGANIC CHEMICALS

SEMET-SOLVAY ENGINEERING CORPORATION

Blue Gas Plants	Gas Purifiers
Water Gas Machines	Condensers
Washer Coolers	Waste Heat Boilers
Naphthalene Scrubbers	Producer Gas Plants

40 RECTOR STREET, NEW YORK, N. Y.

ABSTRACTS

• **ABSTRACTS of papers presented at the American Gas Association Industrial and Commercial Gas Conference, Pittsburgh, Pa.**

Deep Fat Frying Forum—S. E. Tappan, J. C. Pitman & Sons, Inc., Lynn, Mass. Within the past six months J. C. Pitman & Sons, Inc., have built up an excellent gas testing laboratory for the sole purpose of developing fryers which will give best performance under all conditions. One of the foremost demands today is the development of a high-speed fryer to meet the competition from electric appliances. Basically, the electric fryer has fewer construction obstacles to handle. They need not be concerned with combustion problems, flue designs, burner equipment, and a multitude of difficulties that plague the gas men. If more speed is required it is easy enough to increase heating surface area by the addition of heating elements to an extent which is only limited by the ability to keep the fryer clean. This has led some to believe that gas-fired fryers will give way to electric competition. Such could be the case were not the industry keenly aware of the problem at hand. It is entirely possible to meet a high-speed requirement in a gas-fired fryer without resort to excessive heating surface temperatures with its resultant fat destruction. This outstanding ability to save on fat costs, combined with the economy of gas operation, will keep gas-fired fryers well in the foreground.

Forum on Commercial Gas—H. M. Woolman, Jr., Jersey Central Power & Light Co., Asbury Park, N. J. Our chief problem is bringing home to our commercial users the importance of conditioning their gas equipment *at once*. We must sell our commercial customers on this idea, get new equipment in where you can. Then on old appliances go about making repairs with the maximum of service and efficiency, and the minimum of material . . . and so *"keep 'em cooking!"*

Deep Fat Frying Forum—Raymond Little, Equitable Gas Co., Pittsburgh, Pa. In recent years deep fat fryers have been put to numerous applications and no doubt these uses will be further increased. It seems reasonable to expect that the manufacturers should, during the war, carry on research to improve the product. They could develop more diversified shapes and sizes, improve thermal efficiency, improve the product from a utility and appearance standpoint, increase the speed and further develop temperature control. I do not believe that high thermal efficiency is necessary at a sacrifice of other desirable performance features, but the margin between the efficiency of gas and electric units is now too far apart and unfavorable to gas.

Commercial Gas Equipment in Military Establishments—John W. McNair, vice president and general manager, Standard Gas Equipment Corp., Baltimore, Md. Analyzing the situation of gas today with respect to its use in military establishments, we find that it is not making the relative gains being made by coal; that its use is not a settled habit with the Army; that currently there is a question of the industries' ability to deliver gas as a fuel; that the final decision as to the fuel to be used is with the district engineer of the Army Corps of Engineers; that out-of-pocket expense to the government for fuel is the determining factor after availability; that after gas is installed as a fuel there is an important function for the industry in servicing their service; and that suggestions developed as a result of this service function can be directed to the persons who are in a position to determine policy.

• •

• **ABSTRACTS of the papers presented at the meetings of the Wisconsin Utilities Association Gas Section Convention at the Schroeder Hotel, Milwaukee, Wis.**

The Effect of Changeover to Natural Gas Upon Meters—E. C. Hemes, superintendent, meter shop, Milwaukee (Wis.) Gas Light Co. Conclusions reached following a survey of 11 gas utilities which had changed from manufactured to natural or mixed gas are as follows: (1) That all changes in the meter proofs had definitely taken place within four months of the conclusion of the changeover. (2) That the water gas area had been affected to the greatest extent, the mixed gas area by an intermediate amount, and the oven gas territory comparatively little. (3) The change in proof of meters out in the system had amounted to going approximately 1% faster. (4) That the diaphragm replacement program had been very helpful in keeping the meter proofs within reason.

The Use of Heavy Oil in a Standard Water Gas Set—George G. Dormer, plant superintendent, Wisconsin Power & Light Co., Beloit, Wis. A detailed discussion of problems encountered in usage of cheap grades of fuel oil. Blow-holes and blow-over fuel in generator fuel bed must be eliminated to permit checkerbrick spacing which will do a good job of completely cracking oil. Carbon deposits in carburetor checkerbrick may be eliminated by removing checkerbrick and replacing with a brick pier. Oil should be heated "water thin" and sprayed with highest pressure available. Oil admission begins approximately five seconds after the up-run begins, thus allowing all oil cracking to take place in an atmosphere of blue gas.

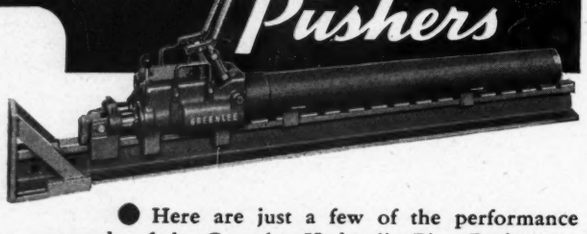
• •

• **ABSTRACTS of papers presented before various recent association meetings. Further information on subjects covered may be obtained by addressing requests to GAS.**

Vitamins for Victory Through the National Nutrition Program—C. A. Nash, United Light & Power Service Co., Davenport, Iowa. The aims of the utility could well be three-fold: (1) Conservation of resources and materials of all kinds, of food supplies and of company's revenues. (2) Salvage to

LAY PIPE *Twice* AS FAST with *Greenlee* Hydraulic Pushers

Here's Proof!



✓ 2½-inch pipe pushed 165 feet under Michigan Blvd., Chicago, in 9 hours. Pushed from 3rd sub-basement.

✓ 3-inch pipe pushed 130 feet in dry hard soil under concrete pavement in 11 hours.

✓ 23,800 feet of 1½" galvanized iron conduit installed for fire alarm raceway under concrete streets in less than ten weeks.

✓ Only 2 hours to push 3-inch pipe 60 feet in rocky filled-in soil under concrete highway.

These performance records taken from letters and information voluntarily sent in by users.

● Here are just a few of the performance records of the Greenlee Hydraulic Pipe Pusher . . . each one proof that the Greenlee Pusher is the fastest and most economical way to lay pipe. These pushes were all made with only one or two men pumping the handles. On each of these jobs the time saved over other methods was more than 50%. There's no extensive trenching, no pavement cutting, no tunneling, no backfilling, no repaving. Only a short trench is dug to accommodate the pusher and pipe. Easy to carry to the job and set up because they're compactly built into one unit . . . no extra equipment needed. Write today for information about the No. 790 Pusher for 1¼ to 4-inch pipe or the No. 795 for large drainage ducts and pipe beyond 4 inches.

Send For PUSHER BULLETIN S-117

Greenlee TOOL CO.
1947 COLUMBIA AVE. • ROCKFORD, ILL.

reclaim all usable functions—to mitigate use of semi-prepared foods, and stimulate wholly home prepared meals. (3) Elimination of waste. To save time, through use of modern appliances and equipment, to free people for gardening, for defense activities and other purposes. The "Nutrition" program provides a "natural," an opportunity to stabilize and increase residential uses and revenues. Presented at the Mid-West Gas Association Annual Convention, Sioux City, Iowa.

Legal Problems Arising From Recycling Operations — E. H. Selecman, Lone Star Gas Co., Dallas, Texas. The legal problems incident to recycling operations are those incident to ordinary oil and gas operations with two main exceptions. One exception is the problem of what constitutes a proper royalty settlement on the condensate extracted at the plant. This arises from the fact that oil and gas leases do not specify a distinct and separate royalty on condensate extracted at recycling plant. Most, if not all, condensate wells, at least in Texas, have been found to be and are classified as gas wells, and as a result the royalty payable on condensate falls within the gas royalty provisions of the lease. The other exception is the problem arising from the injection of residue gas into the producing reservoir. The residue gas is comparatively dry and, being under pressure, spreads out from the point of injection, driving the virgin wet gas ahead of it in the reservoir. The result is that the dry gas may invade virgin wet premises before those premises have produced the liquefiable contents in the gas underlying them. Presented at the American Gas Association Natural Gas Section Convention, New Orleans, La.

Hydrocarbon Hydrates — Ira C. Bechtold, process engineer, The Fluor Corp., Ltd., Los Angeles, Calif. Present knowledge indicates that, for hydrocarbons from methane through propane, hydrates are more readily formed as the molecular weight increases and, in the case of mixtures, such as in natural gas, the position of the pressure-temperature equilibrium curve depends upon the composition. High gas velocities, turbulence, pulsations from compressors, sharp bends, and similar conditions which cause a mixing action will augment hydrate formation, whereas low velocities, slight turbulence, etc., retard the formation of a solid phase even though the contributing conditions of pressure, temperature, composition, and water vapor or liquid water exist. Numerous expedients have been developed for preventing the formation of hydrates or removing them when formed, but none are entirely satisfactory and many interfere with or make operation difficult; it is more satisfactory to arrange a gas processing or transmission system whereby the gas is dehydrated so that it will never become saturated with water vapor under any temperature and pressure conditions which it may encounter throughout the system; under such conditions hydrates cannot form.—Presented before California Natural Gasoline Association.

Home Service Today—Ruth Soule, director of home service, The Brooklyn (N. Y.) Union Gas Co. Today, home service departments must add their efforts to those of government and volunteer agencies to present an educational program planned to improve the health and morale of our country. The nutrition program for the duration must be flexible—must keep in mind food shortages and substitutes for the lack of certain vitamins which may develop as the war goes on. This paper presented at the New England Gas Association 18th Annual Business Conference, Boston, Mass.,

Books and Reports

Gas Floor Furnaces—Gravity Circulating Type, Commercial Standard CS99-42—U. S. Dept. of Commerce, Washington, D. C. Explains Purpose of standard; Scope of standard; Definitions used; Appliance-Construction Requirements; Sizing; Placement; General Installation Requirements; Venting; Gas Connections; Guarantee; Certification and Labels; Effective Date. Also discusses Standing Committee; History of Project. Answers usual questions arising in connection with the acceptance and its significance and lists organizations and individuals which have accepted the standard as their standard of practice in production, distribution, installation, use, and testing of gravity circulating-type gas floor furnaces.

Geology of Natural Gas—A Symposium—published by The American Association of Petroleum Geologists, Tulsa, Okla. Edited by Henry A. Ley. The 1228-page book consists of 38 papers prepared by 47 authors. Only two of the papers have been previously published. It is a comprehensive geologic treatise on the occurrence of natural gas on the North American continent and discusses methods of estimating natural gas reserves. The material is chiefly factual, recording the present knowledge of geologic conditions and situations in and adjacent to important gas-bearing areas. Authors were invited to prepare papers on the geology of gas fields in the regions with which they were most familiar. Some of the contributions are printed with little modification, but most manuscripts have been modified or abbreviated in order that the book could be published in one volume. When the project was restricted to one volume, all papers not bearing on North America were diverted to the "Bulletin" and published in 1934, a year previous to the publication of this book. In order to reduce repetition of stratigraphic sections and to cast many of the gas fields in their regional setting, the scope of a paper usually embraces more than one gas field.

Corrosion In Soils —National Bureau of Standards, U. S. Dept. of Commerce, Washington, D. C., Letter Circular LC689. A summary of data on a considerable number of phases of underground corrosion. Paper was prepared by Kirk H. Logan, chief of the Bureau's Underground Corrosion Section. It is intended to save letter writing in answering oft-repeated questions regarding corrosion, many of which cannot be answered briefly because of the number of factors involved. The paper discusses briefly the theory of corrosion, soil characteristics, causes of corrosion, soil tests, and methods of mitigating corrosion, including the selection of pipe materials, protective coatings,

Water-White Hydrocarbons from Trinidad Asphalt—Halley Tansley Gaetz; 284 pages; fabrikoid; halftones and charts; published by the Phillips Printing Co., 238-250 East 4th St., Los Angeles, Calif. $5.00. Second edition, with 1941 supplement describing applications for patents upon a process for the refining and fractional distillation of oils from asphalt, shale, and other natural products, and for employing basically gaseous fuels in internal combustion engines. The book consists of three separate reports on a simple process of preparation, on fractional distillation for property study, and on analytical and property study—all descriptive in exhaustive detail of methods and equipment devised by the author for obtaining various commercial hydrocarbons from Trinidad asphalt and other sources. Questions raised by various technologists who have reviewed the author's process are published and answered. Bibliographical references and author and subject indexes complete the volume.

Soil-Corrosion Studies, 1939, Coatings for the Protection of Metals Underground—Kirk H. Logan, National Bureau of Standards Research, Paper RP 1446. Obtainable from Superintendent of Documents, Washington, D. C., 5¢. Reports the condition of specimens of metallic and nonmetallic coatings after exposure to soils for periods ranging from 2 to 16 years. Conclusions previously drawn relative to the protective value of zinc and lead coatings are generally confirmed by the latest inspections. A specially applied zinc coating prevented serious pitting in 16 soils over a 16-year period, but a commercial coating of the same weight, exposed to more corrosive soils, did not prevent pitting entirely during the initial 2-year period. Lead corrodes sufficiently in many soils to render lead coatings unsatisfactory. Tin applied as a protective coating was of little benefit in reducing the corrosion of copper in soils. A 7-year-old vitreous enamel, two 7-year-old hard-rubber coatings, and a 2-year-old baked synthetic resin coating having shown little or no evidence of failure.

Handbook of Chemistry and Physics (25th Edition)—C. D. Hodgman and H. N. Holmes; 2503 pages; tables; published by Chemical Rubber Publishing Co., 1900 West 112th St., Cleveland, Ohio; $3.50 in U. S., $4 elsewhere. Latest edition of this indispensable ready-reference book, with new data and a number of revisions. Contents include mathematical table (from four-place logarithms to elliptic functions); properties and physical constants; general chemical tables; specific gravity and properties of matter; heat; hygrometric and barometric tables; sound; electricity and magnetism; light; quantities and units; and miscellaneous (radio formulæ, photographic plate and film speeds, etc.). Most important changes are: Revision of section on amino acids; 15-page table of natural secants and cosecants; conversion tables for pressure to millibars; and complete revision of the collection of abbreviations and symbols.

Introduction to Chemical Physics—J. C. Slater; 521 pages; diagrams, tables; published by McGraw-Hill Book Co., Inc., 330 West 42nd St., New York, N. Y.; $5.00. A study of the wide common ground where the fields of chemistry and physics are beginning to overlap, where physicists and chemists can get the same fundamental training. The text is divided into three parts: thermodynamics, statistical mechanics, and kinetic theory; gases, liquids, and solids; and atoms, molecules, and the structure of matter. Most of the the theoretical physics has been omitted, the author states, in an effort to shorten the book and to make it intelligible to chemists without the theoretical background. Wave mechanics are omitted, and only descriptive use has been made of the quantum theory. The book is designed to help "fill the gap which has grown between physics and chemistry."

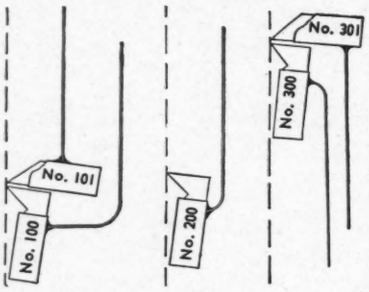
Crude Oil and Gasoline Pipe Lines in the United States, May 1, 1941 (I. C. 7196)—G. R. Hopkins and F. S. Lott. 6 pp. Survey covers approximately five years and shows that on May 1, 1941, crude petroleum pipe lines had a total length of 118,350 miles, an increase of 7770 miles since June 30, 1936. Total length of gasoline pipe lines was 9001 miles; in 1936 this was about 4600 miles. Obtainable free of charge from Section of Publications, U. S. Bureau of Mines, Washington, D. C.

For All of
Your recording
instruments . .

BETA

FOUNTAIN PENS

Insure Against Blotted, Splattered CHART RECORDS



**Pens Illustrated Actual Size.
Can Be Used Separately if Desired.**

Beta Fountain Pens are factory tested and adjusted under a powerful glass. They are sold on a guarantee of "your money back if you are not completely satisfied."

Nibs are made of spring-hard Allegheny metal, hand-honed and adjusted to make a thin continuous line that eliminates splatter and blotting of your chart records. Capillarity is so perfect that ink is used to the last drop. Ink cups are cut from solid brass bar stock—no seams to leak—and the entire pen is heavily plated to resist corrosion. Mounting shanks are spring phosphor-bronze.

Beta Fountain Pens fit practically all types of recording instruments, and are especially suitable for seven-day records, pulsating flows and volumetric arms.

Send for a Trial Supply Today

Price

$1.00 Each

(Lower Prices in Quantities)
Special Designs—Prices on Request

AMERICAN RECORDING CHART CO.

**3113 E. 11th St., Los Angeles, Calif.
510 So. Lansing Ave., Tulsa, Okla.**

Utility Better Copy Awards for 1941

THE Public Utilities Advertising Association has issued 119 awards to representatives of 61 gas, electric, water and transportation utilites for outstanding advertisements entered in the association's 1942 Better Copy Contest. Awards were presented at the annual meeting of the association held at the Commodore Hotel, New York, N. Y., June 23. The P.U.A.A. is an affiliate of the Advertising Federation of America.

"The unusual number of entries (1400) indicated an increasing interest in the activity to improve utility advertising," explained one of the committeemen. A permanent record of the prize winning advertisements was reproduced in a 68-page booklet and distributed to association members.

These reproductions of utility advertising published through the period of January 1 to December 31, 1941, are interesting specimens of utilities' use of all media of advertising and publicity. Of special interest is the theme of advertising, as it underwent a sudden, radical change since December 7, the memorable date of Japan's attack on the United States. It illustrates how public utilities, whose products and services are so essential to America's war effort, turned their advertising appropriations to the welfare of the country. Educational, informative and patriotic in character, the wartime advertisements show the vital part utilities are playing in helping win the war.

Among gas company winners of national awards are the following:

Public Relations Newspaper Advertising—The Cincinnati (Ohio) Gas & Electric Co.

Gas Merchandise Newspaper Advertising—Pacific Gas & Electric Co., San Francisco, Calif.

Gas Load Building Newspaper Advertising—Boston (Mass.) Consolidated Gas Co.

Employee Magazine — Niagara Hudson Power Corp., New York, N. Y.

Employee Newspaper — The Cincinatti (Ohio) Gas & Electric Co.

Motion Pictures—Pacific Gas & Electric Co., San Francisco, Calif.

Electric utilities won numerous awards for Campaigns, Residential Bill Enclosures, Residential Direct Mail, Special Booklets, Window Displays, Radio and other types of advertising.

■ ■

Indianapolis Business Girls Offered Free Cooking Course

The Citizens Gas & Coke Utility, Indianapolis, Ind., has invited local business girls to attend a free four weeks' course in cooking. Girls taking the course actually learn to do the cooking themselves, rather than merely witness home demonstrations.

The utility contacted numerous business organizations and asked executives to inform employees of the course. Each group of girls (limited to 16) is schooled for one night each week for four weeks. The sessions last from 6 to 8 p.m. and girls come straight from their office work.

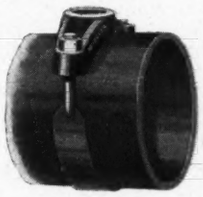
The four baking lessons cover, in order: Baking quick breads, biscuits, coffee cakes, etc.; oatmeal cookies; cakes and various icings, and pies. Miss Marian Schleicher, director of the home economics department of the utility, also makes certain that the art of broiling and proper selection of meats is explained to each class. George A. Saas is advertising manager, and H. F. Trees, assistant advertising manager of the utility.

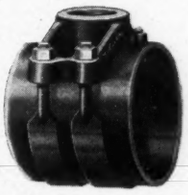
WARM UP
YOUR KITCHEN
ON
CHILLY DAYS
THIS SIDE COOKS
THIS SIDE HEATS
cp GAS RANGE
with a Big Capable
BUILT-IN GAS
CIRCULATING HEATER
SEE YOUR DEALER
P G and E
"Buddy, you're going to have a lot of company up there — sooner..."
THE CINCINNATI GAS & ELECTRIC COMPANY
Now YOU Can Enjoy
New Low Gas Heating Rates
Giving You Savings for Heating Your Kitchen or Entire House ... Small or Large
BOSTON CONSOLIDATED GAS COMPANY

Among prize-winning entrants in the Public Utilities Advertising Association Better Copy Contest were the three advertisements above. They are (left), Pacific Gas & Electric Co.'s Gas Merchandise Newspaper Advertisement; (center), Cincinnati Gas & Electric Co.'s Public Relations Newspaper Advertisement; (right), Boston Consolidated Gas Co.'s Gas Load Building Newspaper Advertisement.

Used to Rough Treatment!

Like the army tanks, service clamps have to undergo rough handling — and here is a clamp that can really "take it." The MUELLER Service Clamp has heavy, wide straps with large nuts. The body, which is of tough malleable iron, will withstand the pounding and strain of installation and the twisting of shifting and settling pipes. In addition, it is accurately curved to fit the pipe, and when properly installed makes a permanently tight connection that will last for years. Write for further facts and prices to Dept. G-5 .





OTHER STYLES AVAILABLE

Los Angeles, Calif. **MUELLER CO.** Decatur, Ill.

The CLEVELAND "BABY DIGGER" MODEL 95

Forerunner of All Full-Crawler Trenchers and Still UNSURPASSED IN PERFORMANCE!

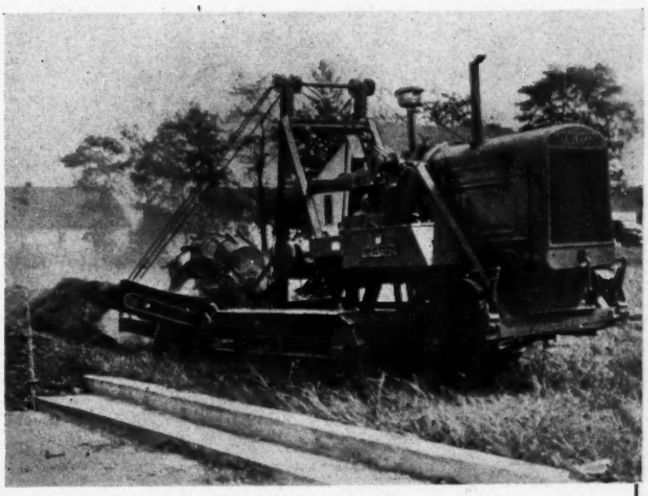
"UNCLE SAM" having first call on all production for "the duration," it's mighty important to keep present equipment in top condition.

Right now, because of the government need for materials used in the manufacture of trenching machines, "Cleveland" is closely limited to supplying equipment for "Defense Pipe Lines" and for the various branches of the United States Military and Naval Services, and production for civilian equipment must be held in abeyance.

"Clevelands," built of the finest and best adapted materials procurable, have proven their ability to stand up and deliver long maximum performance under the toughest working conditions. Due to the fact that under war regulations new machines are not easily available, present equipment is called upon for more than normal service.

"Cleveland" owners appreciate more than ever the unit-type construction permitting quick, easy field replacements and repairs. This means not only economy in maintenance but a minimum of delays and a big saving of time and labor.

Write today for Parts Catalog and let us help you keep your "CLEVELANDS" IN TOP CONDITION FOR LONG PLUS SERVICE.



THE CLEVELAND TRENCHER COMPANY

20100 St. Clair Avenue — *"Pioneer of the Small Trencher"* — Cleveland, Ohio

PEOPLE

At the annual meeting of the Association of Gas Appliance and Equipment Manufacturers, held in Chicago on June 11, 1942, the following officers were elected to take office on October 1 of this year: **Col. W. F. Rockwell,** Pittsburgh Equitable Meter Co., Pittsburgh, Pa., president; **Lyle C. Harvey,** the Bryant Heater Co., Cleveland, Ohio, first vice president; **D. P. O'Keefe,** O'Keefe & Merritt Co., Los Angeles, Calif., second vice president, and **John Van Norden,** American Meter Co., treasurer. Col. Rockwell is now serving as director of production for the Maritime Commission in Washington, D. C.

COL. W. T. ROCKWELL

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W. F. Salt, credit manager, Fort Worth division, Lone Star Gas Co., and **Henry J. O. Nolte,** with the Texas Cities Gas Co. at Galveston, Texas, headed the list of veteran employees in a recent issue of the *Blue Blaze News,* employee magazine of Lone Star Gas System. Both men have served 39 years. The company has recently organized a "20-Year Club" in which 250 employees are members.

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William B. Hewson, manager of advertising and publicity, The Brooklyn (N. Y.) Union Gas Co., has been elected president of the Metropolitan House Heating and Air Conditioning Council. **Harry Woolman,** Jersey Central Power & Light Co., Asbury Park, N. J., was named vice chairman, and **Lewis Paulding,** Long Island Lighting Co., Bay Shore, N. Y., was chosen secretary-treasurer.

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Announcement has been made by Consolidated Edison Co. of New York, Inc., that **Ephraim F. Jeffe,** vice president in charge of sales, has left the company with a military leave of absence. He will be commissioned in the Signal Corps. Mr. Jeffe is a graduate of the Brooklyn (N. Y.) Polytechnic Institute with a degree of electrical engineer. He entered the Army in the last war as a first lieutenant, and later became captain and major. He was cited for his service abroad.

John K. Knighton, manager, air conditioning division, Servel, Inc., Evansville, Ind., has been appointed director of the war-time "Victory Program" of the national refrigeration and air conditioning industry, according to **Dr. William R. Hainsworth,** chairman of the group and president, American Society of Refrigerating Engineers.

J. K. KNIGHTON

The "Victory Program" is being sponsored by numerous trade associations and scientific organizations of the industry. The objective of the program is for the united refrigeration and air conditioning industry to aid the government and the nation in every way possible to help win the war. The program stresses particularly conservation as an effective aid to victory.

Mr. Knighton served in the Navy during the first World War and has been in the refrigeration and air conditioning industry for the past 17 years.

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The appointment of **E. DeGolyer,** outstanding petroleum geologist, as Assistant Deputy Petroleum Coordinator has been announced by Petroleum Coordinator for War **Harold L. Ickes.** Since last July, Mr. DeGolyer has been the Office of Petroleum Coordinator's Director of Conservation. A geologist by training, the new Assistant Deputy Coordinator was a pioneer in the introduction of geophysical methods into the art of prospecting for oil. For his achievements in this regard he has been twice honored. He received the Anthony F. Lucas gold medal of the American Institute of Mining and Metallurgical Engineers in 1940, and in 1941 was the recipient of the John Fritz medal awarded annually by four national engineering societies. Mr. DeGolyer holds the honorary degree of doctor of science of the Colorado School of Mines; is a past president of the American Institute of Petroleum Geologists; an honorary member of the Society of Exploration Geophysicists; a councilor of the Geological Society of America, and a director of the American Petroleum Institute.

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The Citizens Gas & Coke Utility "Quarter-Century Club" held its third annual dinner meeting at the Hotel Lincoln in Indianapolis, Ind., recently. Special recognition was given to **E. J. Cooney,** distribution department employee, who reached his 50th year of service last October, and to **Miss Margaret Widolff,** stenographer, purchasing department, the first woman to complete 25 years of service. Fifteen other new members of the club are: **Fred Hawkins, Augustus Anderson, Charles Dunn, George Heiny, Stanley Noel, Joseph Noone, Harry Schein, Paul Shockney, Carl Bulach, L. R. Hoffman, Howard Griffith, Gilbert Dove, George Hill, Charles Sering** and **Adrian Courtot. Thomas L. Kemp,** general manager, presented the service emblems.

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J. J. Quinn, general sales manager of the Boston (Mass.) Consolidated Gas Co., has been named chairman of the noise abatement committee in that city by **William Reynolds,** advertising manager, Servel, Inc., Evansville, Ind., and president of the National Noise Abatement Council, which is carrying on a nationwide wartime program to strengthen American health and morale and speed up important defense production through elimi-

UNIFORM ACCURACY

Every Sprague Meter must not only pass the most rigid tests before leaving the factory—but raw materials, from which they are made, are subjected to critical Laboratory tests. Each component part is carefully inspected to assure interchangeability. Uniform accuracy is the result and low maintenance costs are certain.

The SPRAGUE METER COMPANY

PRIDGEPORT • DAVENPORT • HOUSTON • LOS ANGELES • SAN FRANCISCO

THE QUALITY OF PAYNEHEAT EQUIPMENT IS STANDING USERS IN GOOD STEAD TODAY!

★ ★ ★

nation of needless noise. Mr. Quinn succeeds **L. A. Newman** as head of the Boston noise abatement committee.

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Alvan H. Stack, management consultant with Ebasco Services, Inc., and former executive of the Florida Power & Light Co., Miami, has been elected president and general manager of the Tampa Gas Co. **Harold P. Anderson,** who has been directing the company's activities since the resignation of **Roscoe Nettles,** former president, has resigned as vice president and treasurer. Mr. Stack was formerly vice president and general manager of the Utica (N. Y.) Gas & Electric Co.

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LT. K. B. LUCAS

Kenneth B. Lucas, former manager of the suburban division, Minneapolis (Minn.) Gas Light Co., is now a first lieutenant in the Army Air Corps, according to an announcement made recently by **E. J. Boyer,** sales manager of the company. Lieut. Lucas attended Massachusetts Institute of Technology and was at one time plant superintendent of the Savannah (Ga.) Gas Co.

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The following former employees of Southern California Gas Co., Los Angeles, have received commissions in the armed forces of the United States: **H. H. Pottle,** Kern division, lieutenant, senior grade, Navy; **Homer Laughlin,** advertising, first lieutenant, Army Air Force; **V. J. Lewy,** northern division, captain, Corps of Engineers, Army; **A. P. Kelso,** sales department, lieutenant, junior grade, Navy.

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Louis Hungate, director of industrial and commercial sales, United Gas Corp., Houston, Texas, has been called to Washington to serve there as senior engineer in the WPB power and fuel division, according to **K. L. Simons,** vice president and division manager, United Gas Corp. Mr. Hungate is a graduate of New Mexico A. & M. College, holding degrees in electrical and mechanical engineering.

• •

John K. Swanson, vice president and general manager of Northern Natural Gas Co., of Saskatoon, and the Franco Public Service Co., of Vermilion, Alta., has been named manager of Vermilion Consolidated Oils and subsidiary, Vermilion Refinery, Ltd.

• •

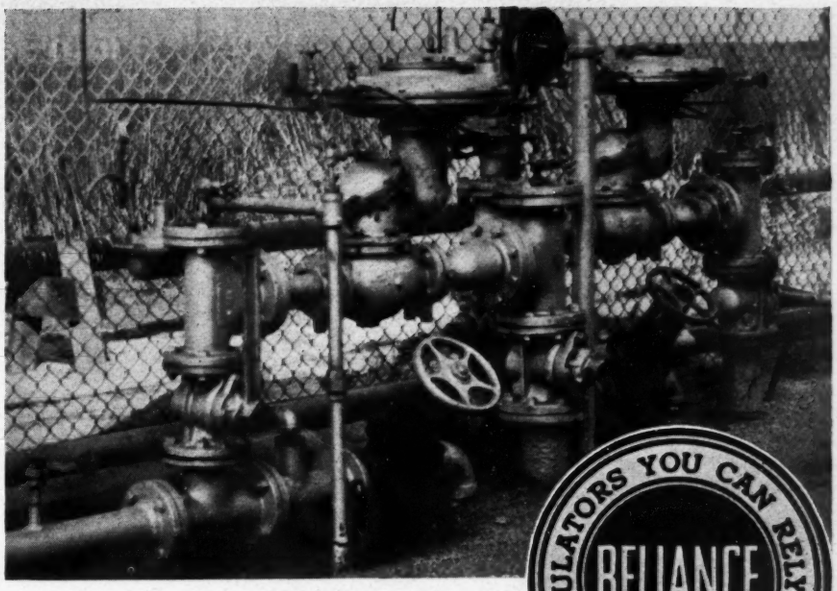
Robert L. Coe, vice president, Chase Brass & Copper Co., Inc., Waterbury, Conn., was elected president of the Copper and Brass Research Association at its 22nd annual meeting held recently at the Hotel Biltmore, that city. He succeeds **John A. Coe,** president, The American Brass Co., Waterbury, Conn.

• •

Harry H. Fair, of San Francisco, Calif., has been named regional director of the War Production Board for that region. The San Francisco Region includes California, Arizona and Nevada, and all field offices in these three states will be directly responsible to the San Francisco regional office.

• •

B. H. Smyers, Jr., former secretary-treasurer, Pennsylvania Natural Gas Men's Association, has been granted a leave of absence for military service and is now at an Army intelligence school in Pennsylvania. He holds the rank of captain. **Paul L. Kesel,** of Pittsburgh, has been appointed acting secretary-



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Somewhere in America, this hook-up of two Reliance Type CBV Offset Connected high pressure Regulators and two Type H low pressure service Regulators is under both direct and remote control.

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The availability of 28 types of Reliance Balance Valve Regulators in a full range of sizes enables you to cover all your gas control requirements at one source.

There is a Reliance Regulator for every gas service—distribution lines, industrial, domestic, liquid petroleum, back pressure, automatic pressure limit with shut-off, etc.

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No. 40—Liquid Petroleum Gas Regulators.
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No. 42—Streamlined Pounds to Pounds Regulators.
No. 43—Low Pressure House Regulators.
No. 44—High Pressure Small Industrial Regulators.
No. 45—High Pressure Compounding Regulators.
No. 46—Toggle Joint Regulators.
No. 47—High Pressure Small Industrial Regulators.
No. 49—Relief, Differential, Back Pressure and Pressure Limiting Valves.
No. 50—Balanced Valve Offset and Direct Connected Regulators.

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Subsidiary of Welsbach Engineering and Management Corporation

treasurer. **C. E. Bennett** is president of the association; **F. M. Sloan** is vice president; and **Mark Shields,** executive secretary.

• •

Theodore D. Crocker, vice president, Northern States Power Co. of Minnesota, is slated for election as president, January 1, 1943, to succeed **Robert F. Pack.** Mr. Crocker joined Northern States in 1912 as commercial engineer and was previously associated with the Milwaukee Electric Railway & Light Co. in the same capacity.

• •

Tom C. Bain, formerly industrial engineer for the Waco (Texas) division of Community Natural Gas Co., has resigned that position and accepted an appointment on the War Production Board. Mr. Bain took up his duties in the power branch of the WPB June 1 in Washington, D. C.

• •

Earl W. Mueller, formerly chief clerk in the sales department, Laclede Gas Light Co., St. Louis, Mo., has been appointed supervisor of the credit and collection department, succeeding the late **Owen Shannon,** it is announced by **Elmer L. Ramsey,** director of customer relations.

• •

Blackwell Newhall, assistant to the president, Philadelphia (Pa.) Gas Works Co., has been commissioned a lieutenant commander in the U. S. Naval Reserve. Mr. Newhall has been granted a leave of absence by the company. He is a graduate of the U. S. Naval Academy, class of 1923.

• •

Carl J. Forsberg, former manager, Wisconsin Power & Light Co. office at Lake Geneva, is now in the armed forces. **Howard Grier,** operating superintendent for that district, will succeed Mr. Forsberg for the duration of the war emergency.

• •

Harry D. Falls retired June 1 as manager of the Brazil, Ind., division of the Public Service Co. of Indiana, gas and electric utility. He will be succeeded by **Roy E. McCullough.** Mr. Falls has been head of the division for many years.

• •

John P.Mansfield, foreman in the Strong field of Pennsylvania for United Natural Gas Co., Oil City, Pa., retired recently after completing 45 years of service with the company. He was the oldest employee in point of service.

• •

Elliott Peabody, former sales manager, Citizens Gas & Coke Utility, Indianapolis, Ind., has received a commission as first lieutenant in the Army Air Corps, and is stationed at Randolph Field in Texas.

• •

C. E. Vollmayer, former representative of the Geo. D. Roper Corp. of Rockford, Ill., in New York state, has received a commission as major in the Army Air Corps and has reported for service.

• •

Herman H. Koelbel has been named to succeed **Floyd D. Avis** as division manager of the Jackson (Mich.) Division of Consumers Power Co. Mr. Koelbel is a veteran employee of 27 years' service with the company.

• •

W. G. Weil, agent of the Monessen, Pa., office of the Peoples Natural Gas Co., Pittsburgh, Pa., was retired effective July 1, 1942. **J. Hunter Shaw** is now connected with the Monessen office of the company.

• •

Faren Fladoes, home economics director of Peoples Gas Light & Coke Co., Chicago, Ill., has been elected president of the Women's Advertising Club of Chicago.

Ernest J. Sneed, assistant production foreman in Lone Star Gas Co.'s Eastland, Texas, production district, has been appointed district production foreman to succeed **Herman C. Kelley,** and has in turn been succeeded by **George E. Groseclose.**

• •

W. H. Stueve, engineer for Oklahoma Gas & Electric Co., Oklahoma City, Okla., has been elected president of the Oklahoma City Engineering Club.

Obituaries

F. A. Cressey, Jr.

Frank A. Cressey, Jr., recently ended a long and successful career in the gas industry. Mr. Cressey was formerly president of the Modesto (Calif.) Gas Co., which he sold to the Pacific Gas and Electric Co., San Francisco, in 1929. Mr. Cressey then became associated with the H. R. Basford Co., San Francisco, as vice president. While in Modesto, Mr. Cressey took an active part in gas utility affairs and served in the Pacific Coast Gas Association. He was president of that association in 1916. Mr. Cressey was a brother of Mrs. George P. Engleston, who was "first lady" of the association in 1934.

• •

G. C. Blackmore

George Coleman Blackmore, 76, president of the Automatic Gas Equipment Co., Pittsburgh, Pa. died recently. Mr. Blackmore was associated with several radiator and boiler concerns until the Automatic Gas Equipment Co. was organized in 1922. He was active in the development of designs for hot water heating systems and gas steam radiators. He was a charter member of the American Society of Heating and Ventilating Engineers, which was organized in 1894, and in 1931 was made a life member of the society's council.

• •

H. G. Frost

Henry Gordon Frost, 51, organizer of the El Paso (Texas) Natural Gas Co., died recently. Mr. Frost was a prominent oil and cattleman in Houston, Texas, and organized numerous business organizations in El Paso. He organized the El Paso Natural Gas Co. in 1928 and served as its vice president and general manager until 1936. He was a director of the El Paso National Bank and was president of the Havana Oil Co., the Coast-Wide Oil Co., and the Occidental Royalty Co.

• •

G. E. Keenen

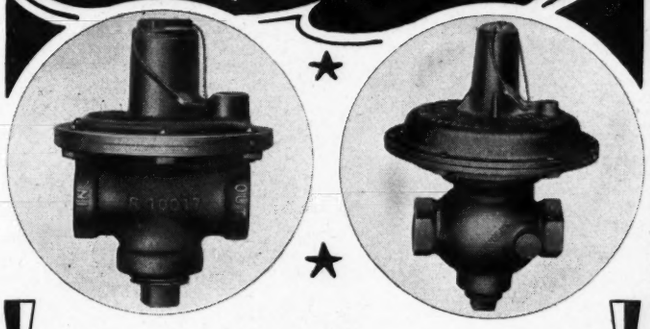
George E. Keenen, vice president of the Cribben & Sexton Co., Chicago, Ill., died recently. He had been connected with Cribben & Sexton for 15 years, and was well known in gas range circles along the East Coast. He also was president of the George E. Keenen Co., wholesale plumbing firm. Mr. Keenen was a member of the Gild of Ancient Supplers and a former president of the Eastern Supply Association.

• •

Charles McLean

Charles McLean, former secretary and general manager, the Key City Gas Co., Dubuque, Iowa, died recently. He was 78 years old. Mr. McLean joined the Key City Gas Co. in 1933, succeeding the late George McLean, his twin brother, as secretary and general manager.

REYNOLDS LOW PRESSURE REGULATORS INSURE UNIFORM DELIVERY Pressure



REYNOLDS Low Pressure Regulators

insure uniform delivery pressure even though the volume varies and the line pressure fluctuates. These units illustrated above are precision built and delicately balanced for accurate performance on low pressure installations.

The factory test through a range of operating conditions is the manufacturer's pledge that the units are satisfactory, but the thousands in operation, after years of service, is the proof that Reynolds Low Pressure Regulators are reliable, safe and economical. Several models especially designed for specific jobs insure a model to answer every requirement.

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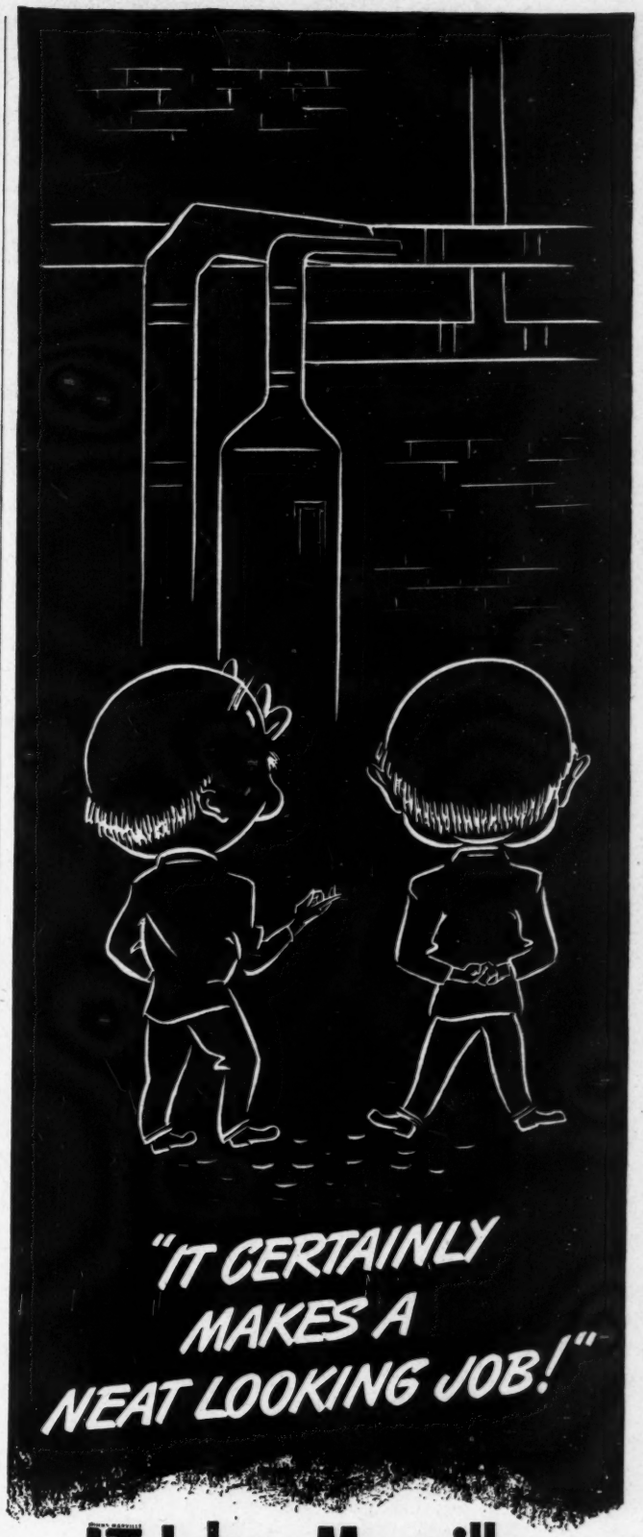
GAS CONTROL SINCE 1892

REYNOLDS GAS REGULATOR CO.
ANDERSON, INDIANA, U. S. A.



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For war-time emergency-breaks in pipe lines, this Doublex Simplex Split Sleeve will enable you to make quick, economical, effective repairs. You should have a supply of several of each different size that you might need. Thousands in use, some for 13 years. Order now from shipping point nearest you as follows: Birmingham, Dallas, Kansas City, Los Angeles, Minneapolis, San Francisco, Pittsburgh.

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850 BASO SWITCH
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PRODUCTS

Automatic Controllers

Fischer & Porter Co., 40 County Line Road, Hatboro, Pa.

Model: Rotamatic.

Application: For automatic control and permanent chart record of liquid or gas flow rates. Valuable for measuring and controlling flows of viscous or corrosive fluids, such as fuel oils, sulphuric acid, caustic, hot tar and organic liquids which, the manufacturer states, no other controller can successfully handle.

Description: The rotameter float position is transmitted to the recorder pen arm through the use of a self-balancing induction bridge. When the recorder pen arm is not at the same position as the control index arm, a flapper changes the air pressure within a bellows type control system. The changed air pressure opens or closes a diaphragm motor control valve in the flow line to bring the rate of flow back to the desired control point and to keep it at that point. The meter is made with indicating-controlling, recording-controlling, or recording-integrating-controlling features to suit any specific requirements.

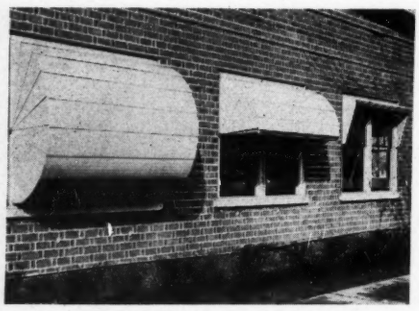
■ ■

Blackout Awning

The Acklin Stamping Co., Toledo, Ohio.

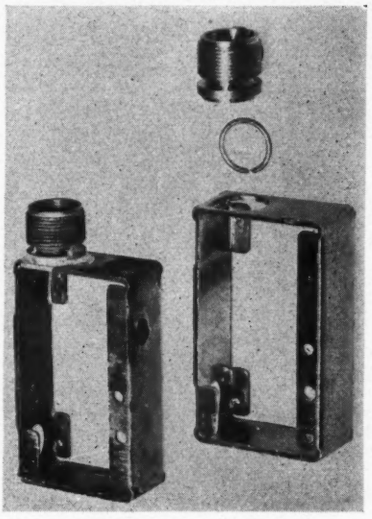
Model: "Meta-Fold" Metal Blackout Awning.

Application: For industrial, commercial and residential buildings.



Description: Sturdily constructed metal awnings, installed on the exterior of the building are operated as simply as the old-time roll-top desk. For sunlight protection, the metal awning can be lowered half-way. For complete blackout, the awning is fully lowered. To conserve space when the awning is raised, it has been designed in "galvannealed" steel segments that nest together in a telescopic manner. Each segment is sealed from the other by a light-proof, noise-absorbent gasket. The entire awning is rust-proof and fire-proof, and can be provided with an inside lock. The metal covering for the windows affords protection to the glass against blast and flying splinters. Other advantages claimed are: elimination of tell-tale reflection from the moon and other outside light at night; permanence of the installation which requires no seasonal taking down and storing; full use of day-time light; no restriction of day-time ventilation; and after-war value in sunlight protection and safeguarding against theft or other outside trouble.

■ ■



Silver Brazing Alloy

Handy & Harman, 82 Fulton St., New York, N.Y.

Model: Micro Switch housing (illustrated).

Application: The manufacturer states that silver brazing alloys are helping materially to speed up war production in metal working plants.

Description: The steel stud fitted into the steel box was formerly brazed with a high melting point base metal alloy; then, after grinding off excess alloy and cleaning, the assembly was cadmium plated. After the parts are cleaned and fluxed, a ring of brazing alloy is placed between the stud and the box. The assembly is then heated in a gas-fired furnace. At 1175° F. the silver alloy ring melts and flows between the parts, forming a leak-tight joint. By low temperature silver alloy brazing, no grinding is necessary after brazing and the joints remain leak- tight, even when replating is necessary. The manufacturer states that production immediately increased 300%. Illustration above shows (at left) after heating to 1175° F. the ring has melted and penetrated through parts; (at right) Easy-Flo ring ready for placing between stud and box.

■ ■

Emergency Burn Kit

E. D. Bullard Co., 275 Eighth St., San Francisco, Calif.

Model: Bullard Emergency Burn Kit.

Application: Protects workers from unnecessary pain and scarring from industrial burns and promotes rapid healing.

Description: Pressing the valve on the dis-

penser bottle liberates a fine, steady spray of tannic acid to cover burned areas, offering a quick, painless application for burn treatment, states the manufacturer. The tannic acid is fully prepared, needs no mixing prior to application, and is ready for instant use. Besides the tannic dispenser bottle, the Emergency Burn Kit contains castor oil for eye burns and a complete assortment of treatments and dressings. The units are packed in a wooden case, natural finish, that is easy to open and offer complete dust-proof protection to the dressings.

Catalogs

• Republic Steel Corp., Cleveland, Ohio, has issued a 44-page booklet illustrating and describing the manufacture of Republic electric weld pipe, including details on the normalizing process employed in the manufacture of electric weld casing and tubing for oil wells. The booklet tells the story of Republic Electric weld line pipe, casting and tubing.

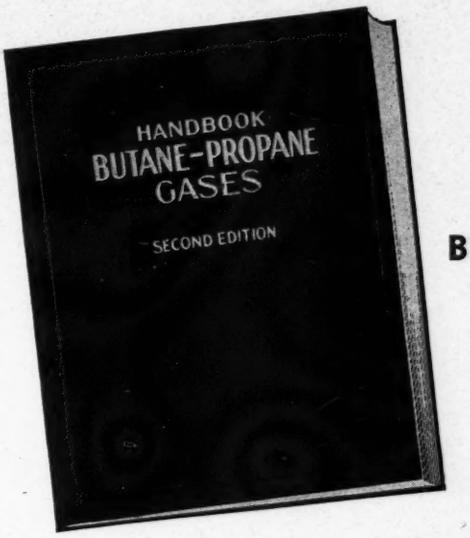
• Pittsburgh Plate Glass Co., Pittsburgh, Pa., has issued a brochure titled "Glass and Its Adaptability to Modern Needs," which shows how gas companies may substitute flat glass for strategic materials. The 32-page booklet deals mainly with polished plate glass and laminated safety glass, with smaller sections for 10 other kinds. Each product is described in regard to availability, properties and uses.

• The Farval Corp., Cleveland, Ohio, has issued an eight-page bulletin 8 by 11 in., in three colors describing in detail the Farval centralized system of lubrication. The booklet, titled "Why Farval?" deals with the simplicity of the Farval system and illustrates the component parts. A series of cross sections show the progressive movements within the measuring valve as it delivers oil or grease under pressure to each bearing.

• Air Reduction Sales Co., 60 East 42nd St., New York, N. Y., has issued a 55-page book, "Welding Procedures," which describes processes for particular metals. The book also recommends the best filler metals to be used for each process, and describes several specialized welding techniques. In an appendix, data are given for the calculation of electrode and gas welding rod consumption for different types of welds; also comparative welding record sheets for tabulating data that will determine the best welding method for a particular job. Metals are grouped alphabetically under such headings as aluminum, die cast metals, malleable iron, steel, wrought iron, etc. Single copies of the book are available on request.

• The R-S Products Corp., Philadelphia, Pa., has issued an illustrated catalog, No. 10-B, on Butterfly Valves. The 16-page booklet features standard and special butterfly valves for the control and tight shut-off of air, gas, steam, liquids and semi-solids under high and sub-zero temperatures and varying pressures from 2 to 300 lbs. per sq. in. Contains performance characteristics under all conditions of service, manual and automatic control, specifications, flow charts and a discussion and illustration of the use of bronze, steel, meehanite, molybdenum and other metals for special conditions including solenoid emergency service. An explanation of wedge-tight shut-off by means of accurate machining and the angle of closing of the butterfly vane against the body of the valve, is also featured.

WHILE THEY LAST



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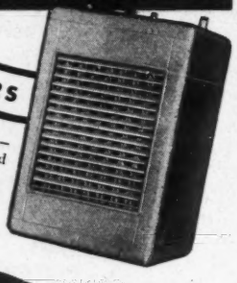

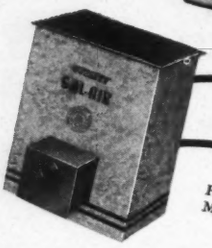

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Floor and Dual Register Models in 3 capacities.

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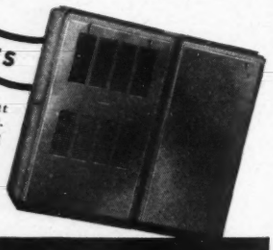
Compact, efficient Blower-type, forced-air basement and closet models.



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NATIONWIDE SALES AND STOCKS

McCall's Magazine Contest Deadline Set for August 1

GAS utility home service departments competing for the second annual awards in the *McCall's Magazine* Awards Contest are instructed to submit their papers to American Gas Association Headquarters on or before August 1, 1942.

Cash prizes of $100, $50 and $25, with plaque or certificates, will be made to the three home service directors or directing heads of the home service departments of those gas companies in the United States and Canada which have, in the judgment of the jury of awards, made the most outstanding contributions to the advancement of better living in the home.

Basis for awards is as follows:

Entrants will submit papers of 2000 words or less covering the following five heads (rating for judging included):

1. The aim of the particular home service department (rating, 15 points).
2. The training of personnel and sales people (rating, 15 points).
3. Community activities engaged in by the home service department (rating, 20 points).
4. Any increase in scope of home service activities in the current year over the preceding year (rating, 25 points).
5. Accomplishment of aims (rating, 25 points).

The awards will be announced in October, 1942, for the calendar year of 1941. Entries should be addressed to *McCall's Magazine* Awards, care of the American Gas Association, 420 Lexington Ave., New York, N. Y.

■ ■

Canadian Plant Will Adapt Refinery Gas to System

The new processing and purification plant to adapt residual gas from the Imperial Oil, Ltd., refinery for distribution through the natural gas system of the Union Gas Co. of Canada, Ltd., Chatham, Ont., will, it is expected, be in operation early in October.

In addition to the processing plant, a gas holder of 400,000 cu. ft. capacity is being erected to increase the Union company's reserves. Storage of surplus gas from the processing plant in the partially depleted Dawn gas field will be undertaken.

Out of print publications of the
U. S. GEOLOGICAL SURVEY
and
U. S. BUREAU OF MINES
are now for sale. Write for lists, specifying states in which you are interested.
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Thos. L. Kemp (left), general manager, and D. T. Burns, assistant general manager, of Citizens Gas and Coke Utility, inspect the 100,000th gas meter in use in Indianapolis and suburban areas.

Citizens Gas & Coke Utility Now Serves 100,000 Meters

There are 100,000 gas meters now in use in Indianapolis, Ind., and in suburban areas served by Citizens Gas & Coke Utility. The 100,000th gas meter (encased in glass) is in actual operation on the main floor of the utility's business office. (See cut above.)

In September, 1935, there were 876 miles of gas mains in service for the company. Today there are nearly 1200 miles, a gain of over 60%. Annual consumption of gas has increased from 3,000,000,000 cu. ft. to nearly 5,000,000,000 cu. ft.

Two rate reductions in May and October, 1936, saved gas customers more than $1,000,000 annually. In March, 1941, a new 12,000,000 cu. ft. gas holder doubled the utility's storage capacity and in October, 1941, 41 new coke ovens increased the gas production facilities by one-third. In May, 1942, the old Indianapolis Gas Co. properties were bought, freeing the utility from a 99-year lease.

■ ■

Laclede Gas Light Co. Again Wins St. Louis Safety Trophy

The Laclede Gas Light Co. has again won the safety trophy of the St. Louis (Mo.) Safety Council for having the lowest rate of automobile accidents for 1941. The plaque was awarded at a meeting of the executive committee of the Greater St. Louis Safety Council on May 1.

This is the twelfth trophy the Laclede company has won for safe driving in competition with other companies in St. Louis since 1929.

In the period before 1940, Laclede won the divisional trophy for 1934, 1936, 1938, and 1939, during which years the company participated in division "C," a group which was made up of companies operating 75 or more vehicles. The company also won trophies in the utilities group in 1929, 1934, 1936, 1937, 1938, 1939, and 1940.

■ ■

Out-of-Print Publications

James C. Howgate (Bookseller), 120 So. Church St., Schenectady, N. Y., is now offering for sale out-of-print technical publications of the U. S. Geological Survey and similar governmental agencies. All publications are complete as to maps and text. Almost 200 publications are available relating to the geology of California alone and a comparative number for other states.